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3010	3020	3030	3040	3050	3060	3070	3080	3090	3100
AAACACCATGTTACATCATTAATGATGATATCAGTGTAGTTAGATCCGATGTAGACAAATATCTTATCTTGTCTGCGTGAAGACTGTCTT TTTGCTGTACATGTAGTAATTAGTACGTATAGTCACATCAATCTAGGCTACATCTCTGTATTAGATTAGAAACAGACCGACTTCTGACAGGA									
3110	3120	3130	3140	3150	3160	3170	3180	3190	3200
TAACTATCATTTTAATGCAATTTGCTTTTGGCAGAGTAACAATGTCACAGATATTGTGTGATTTCCAGCGGTGAAGAAAGGAATGGAAG ATTTGATAGTAAGATTTAGGTAAACCAAAACGGTCTCATTTTGTACAGTGTCTATAAACAACAGTAAGGTCGCACTTCTTCTTACCTTTC									
3210	3220	3230	3240	3250	3260	3270	3280	3290	3300
AAAACGAGGGGTGAAGCTGCTGTTCTCTCTTACTGCTTACTGAAGTCAATAGCTGGGGGGGGGGGACTGTTCACATGGAACCGTTTCTCT TTTTGTCTCCCACTTCCGACGACAAGGAGAGATCAGCGATGAATCTTCAATGTATGACCCCCCCCCCTGACAAGTGTACCTGTGCAAAAGAGA									
3310	3320	3330	3340	3350	3360	3370	3380	3390	3400
TTGTTCTACACTGGCGCTCTGGCAAGAACTTCCCTTCTTCTTCCCCCAAGCAATCTTGGCTGAAGGTCACTGTGAAAAGGGCGCTGGCCAAAG AACAAAGATGTGACCGCGGAGACCGTTCTTTGAGAGGGAAGAAAGGGGTTCTGTATAGAACCGACTTTCAGATCGAGACTTTTCCCGACCGCTTTC									
3410	3420	3430	3440	3450	3460	3470	3480	3490	3500
TTACTGTAGGGGACCGTGTGATGGAATGGGTAGACAAAGCACTTAGCAGGCACTGGAAGAGACCGGGGGCTTCTCTGTGCAATTTGCCCTGAG AATGACATCCCCCTGGACCAGTACTTGACCCCATCTGTTTTGTGAGATCTGCGTGAACCTTCTCTGCCCCGAGAGAGACACGTAAACGGGACTTC									

FIG. 5G



3510 3520 3530 3540 3550 3560 3570 3580 3590 3600
CCCTGACCAACGCCAGCTCCCTGCATCTCTGCTTATGGCTTTCTGACCGAGCCAGCAGAGTTCACAAACCGAATGCTTCTTAGGGCTTAATCAGT
GGGACTGTGGCGTTCAGGGACGTAGAGGAACGATACCAGAAAGACCTGGCTCCGTCCGTCTCAAGTGTGGCTTTACAGAGATCCCGATTAGTCCA

3610 3620 3630 3640 3650 3660 3670 3680 3690 3700
AACTTCGACGATTTTAAGTTCACAGATGACGAGAAACAGTGAAGCGCTTGGCAACCTGGAATAAGCGCTATCTTTAATTAAACATTTCAGACGGG
TTGAAGCTGTAAATTTCACCGGTCTAACCTGCTCTTTTGTCACTCCGCAACCGTTGGAACCTATTCGGGATAGAGATTAATTGTGAAGTCTGCC

3710 3720 3730 3740 3750 3760 3770 3780 3790 3800
CGGGGATG-CGGTGGCCAAAGCACCATTAACAAACTTCCAGTACTGACCACTCACTCAAGTTGTGCCCGAGTACATTAGTTCAAGGCTCT
GCCCCCTAC-GCCACCGGTTTCTGTGATTTTGTGTGAAGTTCACTGACTGTTGAGTGAAGTTCAACACGGGGCTCATGTAGATCCAAGTCCCGACA

3810 3820 3830 3840 3850 3860 3870 3880 3890 3900
TGTCTTCATGCTCCCACTGCGGCGGATTTTGTGCTCCCTTGGCACTTTCAGTGAAGCGGAGAGAGTTCGCACTTGCAGGCTCCTAATGAGGGCG
ACAGAACTACGAGGGTTGACGCCCGCTAAACACGGAACCTGAAGTCAAGTCCCGCTTCTCAAGACGTGAACGTCCGAGGATTACTCCCGC

3910 3920 3930 3940 3950 3960 3970 3980 3990 4000
AGTGGGCTCGTGTCTCTGTGATGCTTCCAGGTTGCTGGGGCAGCAAGTGTCTCAGAGCCCATTACTGGCTACATTTTACTTCCACAGAAACGAG
TCACCCGAGACAAAGACCACTACGAGGGTCCAGACCCCGTCTTCAAGAGTCTCGGTAATGACCGATGTAAATTGAAGTGTCTTGGCTC

FIG. 5H

2510 2520 2530 2540 2550 2560 2570 2580 2590 2600
ATCGTCCCTCCCTTACCCAGATCTGACAGCCCTCCTTGGCTCTTTTGTGAGGTTTGTGAGTTTGTCTCTCTGCAAGAGAGTTCTTAAAC
TAGCAGGAGGAGATGGGTCTAGACTGTCCGGAGGAAACGAGAAAAGACTCCAAACAACACTCAAAACAATAAGAGACGTTCTCTCAAGGAAATTG
2610 2620 2630 2640 2650 2660 2670 2680 2690 2700
ATTCTAACCTGTTCAGAGTAAATACACCTTTAGCTTAAAGGCCACACACCCAGGGGAACCCGATAAAGAACAAAGCCAGACCTTCAGAACGCTGT
TAAGATGGACAAGTGTTCATTATGTGAGAAATCGATTCTCCGGTGTGTGGCTCCCTTGTGCTATTTTCTTGTTCGGTCTTGGAAGCTTGGCACA
2710 2720 2730 2740 2750 2760 2770 2780 2790 2800
CGATTAGGTACACCAAGCAGCCTTCATACGAGTTTTCATTTCGTGAGAGCTGAAATTAACAACAAGCTTAATGTGAGCAGACCAAGCATGCCCTCTCTAA
GCTATCCATGTGTTCGTCCGAAATATGCCCTCAAAAGTAAGACTCTCCGACTTAATATGTTGTTCGATTTAACACTCGCTGTGTCGTAACGAGACGATT
2810 2820 2830 2840 2850 2860 2870 2880 2890 2900
ATGAGGATGCCACACCAAAACATGCCCAAGATCTTCAAGTAAATTTTATATATAGATTCCCTATGTGTGACATGTTTTTATATAGTAACTCGATT
TACTCTTACGGGTGTGTGTGTAACGGTCTTAGAAGTTCATATTAATAATATATCTAAGCGATACACAACTGTACAAAAATATCACTTGACCTTAAA
2910 2920 2930 2940 2950 2960 2970 2980 2990 3000
ACAAACCCCTCTGTGTTCACACCTGTCTTGTGACACATTACTTGAGGCTTAAGGACGTGATTAAGAGCATGCCGTGTTCCTCCCTTAATTTTTTAAAGA
TGTTTGGAGGACCAAAACGGTGAACGAGACCCGTGATGAATCCGATCCGATTTCTCTGTACGACAAAGGGGGAATAAAAAATTTCT

FIG. 5F

FIG. 5E

4010	4020	4030	4040	4050	4060	4070	4080	4090	4100
CTGCGTCCAGATTTCCTCAAGATCGACTTGCCTCCCGCCGACAGTTCCGGGCTAGTGGGGAGTGGCGCTGGGAAACCGGAAACCTGGTATC									
GACGCAAGTCTAAACGAGAGTCTACGCTGAACGGCGGGCCGTGTCAAGGCCCATCACCCCCTCACCCGCAACCTTTGGCCCTTGGGTTTGAACCATAG									
4110	4120	4130	4140	4150	4160	4170	4180	4190	4200
CAGTGGGGGGCGTGGCCGGAACGAGGAGTCCCCACCCCTCCCGTAAATGACCCCGCCCCATTTCGCTTAGTGTAGCCCGCGCTCTTTCTGCCCTGA									
GTCACCCCCGCACCGGCTGCGTCCCTCAGGGGTGGGAGGGCCATTACTGGGGCGGGGTTAGCGATCAACAATGGCCGCGAGAGAAAGACGGGACT									
4210	4220	4230	4240	4250	4260	4270	4280	4290	4300
GTCTCAGGACCCCAAGAGTAACTGTGTTTCCCTTAGATCGCGCGGACCGCTACCCGGCAGAGCTGAAGCCCAACTGTGTCCCGCAGCCGGGATTA									
CAGAGTCTCGGGTCTCTCATTCGACACAAGAGAACTHAGCGCGCCCTGGCGATGGGCCCTCTGACTTTCGGGTCTGACACAGGGCGTCCGCCCTAAT									
4310	4320	4330	4340	4350	4360	4370	4380	4390	4400
CCTGGCTGACCCGATTCCCGGGAACCGCTGCAAGCCGGCGGTGAACCAAGGCGCGCGTGCCTCTCCCGGCTTTCGCTTCCGGGGCGCATAC									
GGAACCACTGGGCTAAGCGCGCTGTGGGGAAGTGGCGCCGACCTCGGTCCCGCGGCAAGGGGCGGAGAGGGGCGAAGCGGACGCCCCCGGCTATG									
4410	4420	4430	4440	4450	4460	4470	4480		
CGCCTCTGTGACTTCTTTGGGGGACAGGACCGAGAAAGAGTCTGTGCTGAGAACTGGGCTCTGTGCCAGCGCGAGGTGCAGATG									
GCGGAGACACTGAAAGAAACGCCCGTCCCTGCTCTTCTCAGACACGGACTTTGACCCGAGACACGGGTGCGCTCCACGTTAC									

FIG. 5I



VEGF	VEGFR2	Tie2
Screening primers	Screening primers	Screening primers
Primers: VF1-VR1A Product size: 0.69Kb	Primers: KF1-KR1 Product size: 0.45Kb	Primers: TF3-TR1 Product size: 0.45Kb
PCR program	PCR program	PCR program
Hot start	Hot start	Hot start
94°C 40 sec 65°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 58°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 58°C 1 min 30 sec 72°C 1 min 30 sec
40 cycles	40 cycles	40 cycles
Confirmation primers	Confirmation primers	Confirmation primers
Primers: VF2-VR2 Product size: 0.98Kb	Primers: KF2-KR2 Product size: 0.58Kb	Primers: TF2-TR1 Product size: 0.47Kb
PCR program	PCR program	PCR program
Hot start	Hot start	Hot start
94°C 40 sec 65°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 65°C 1 min 30 sec 72°C 1 min 30 sec	94°C 40 sec 58°C 1 min 30 sec 72°C 1 min 30 sec
40 cycles	40 cycles	40 cycles

FIG. 6

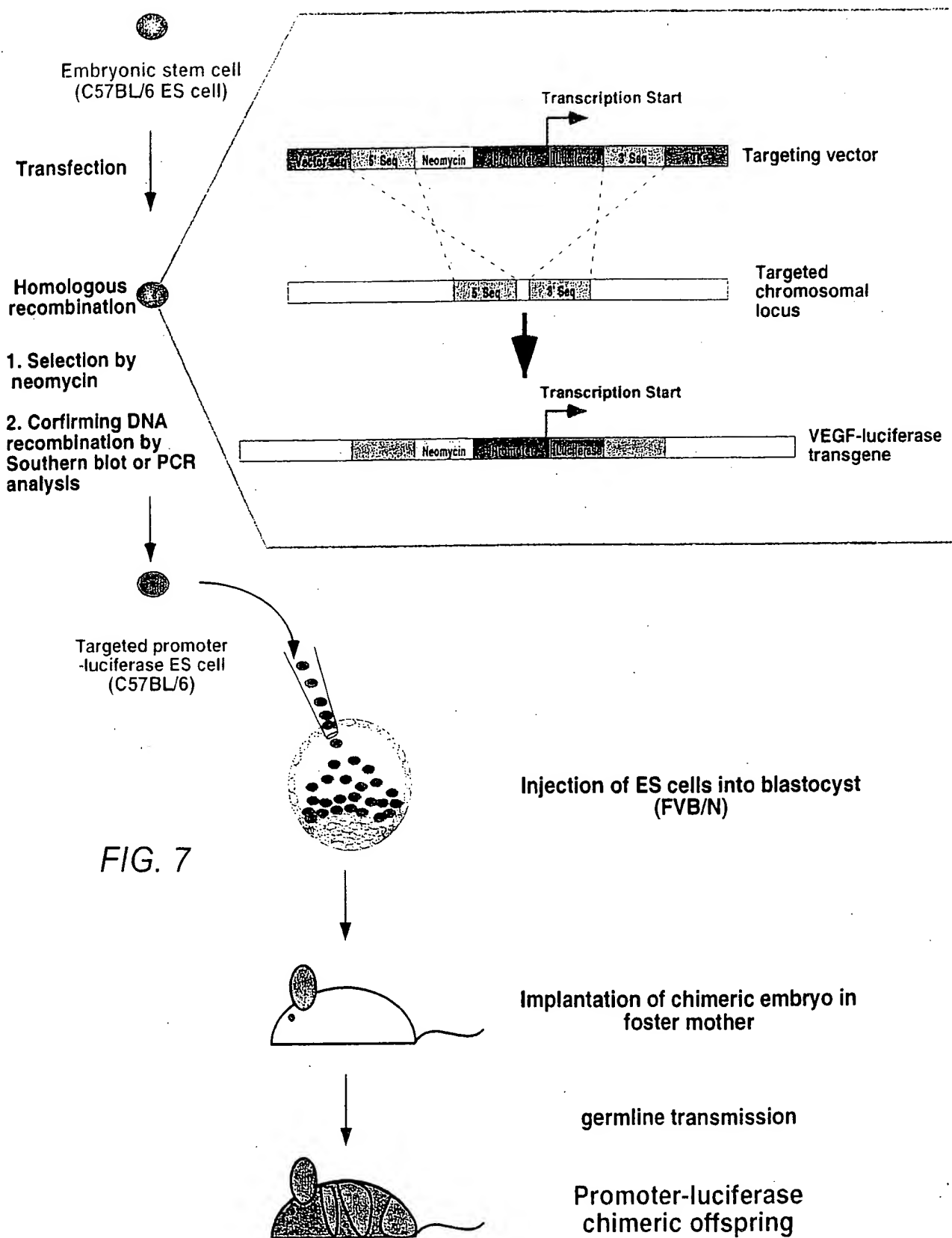


FIG. 7

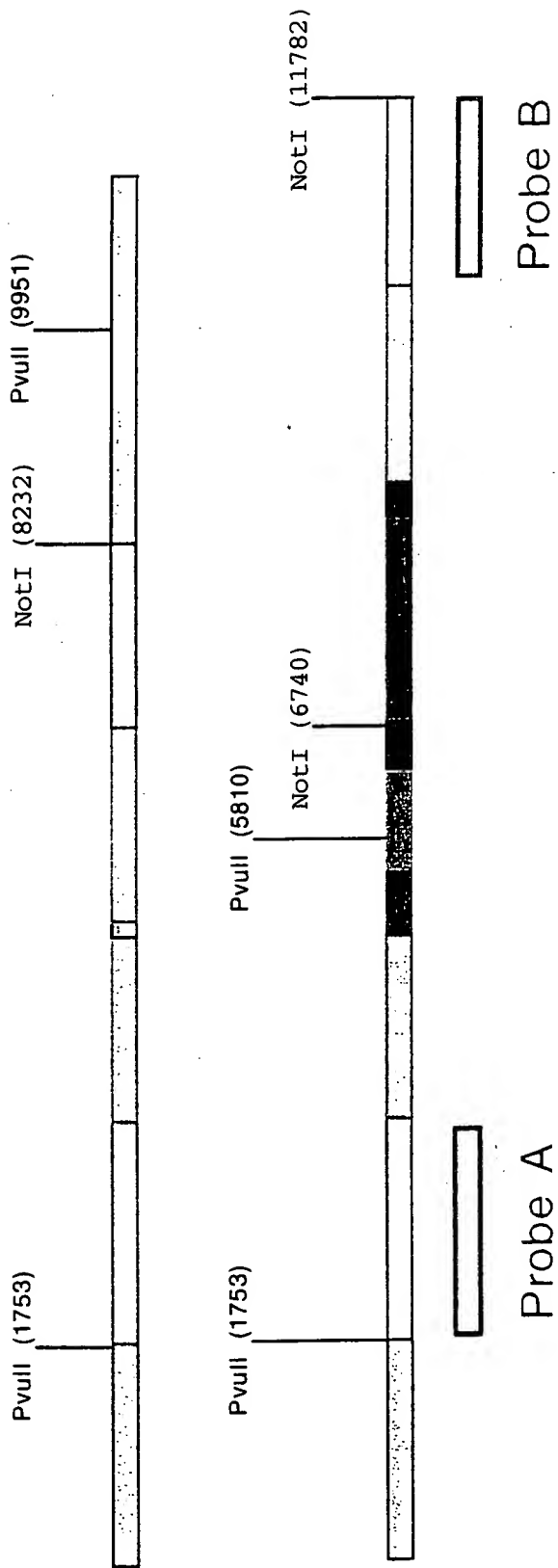


FIG. 8

Generation of Targeted Transgenic Mice

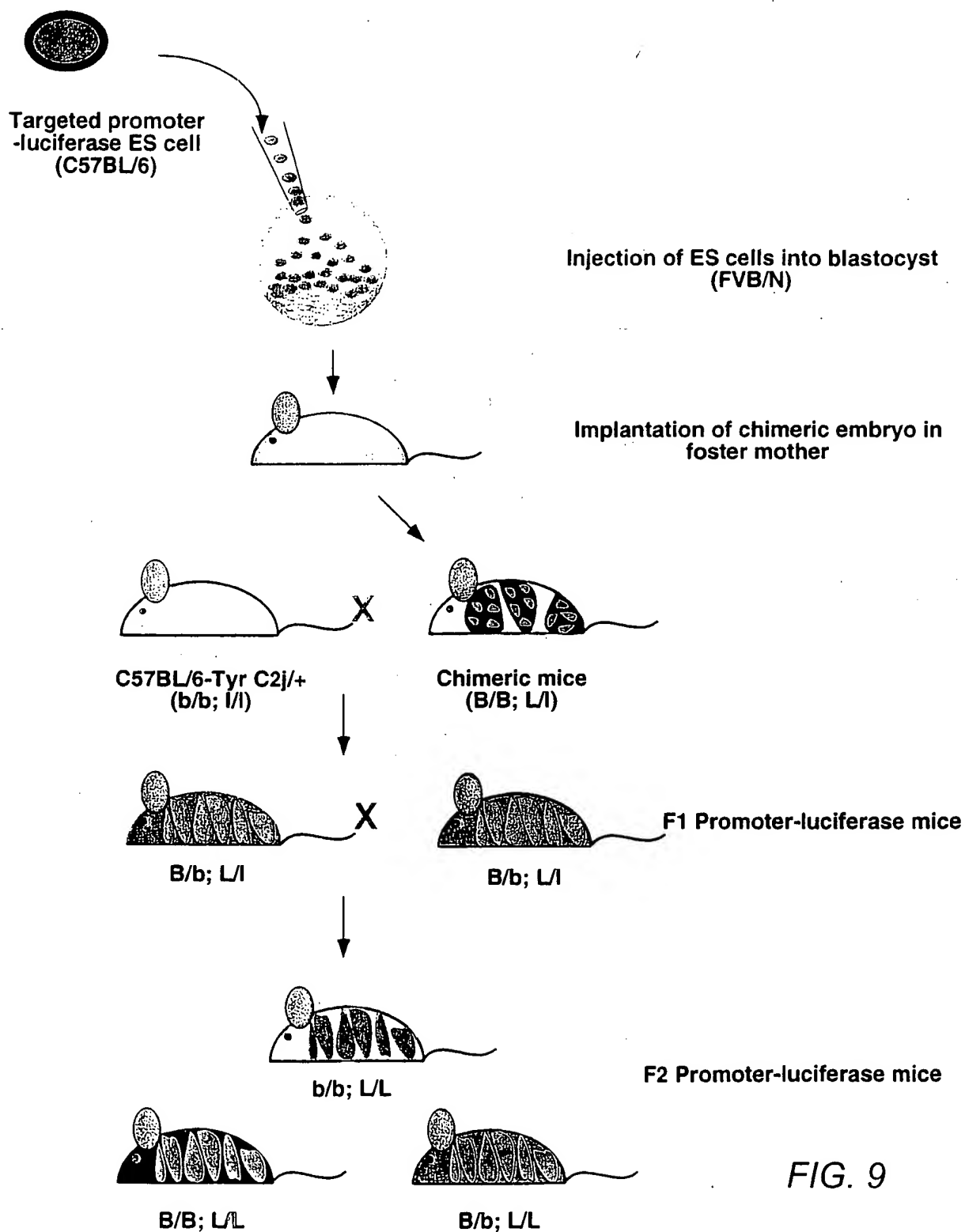


FIG. 9



**pTKLG-Fos/VEGFR2
targeted transgenic vector
(Yellow-green luciferase)**

**pTKLR-Vn/VEGF
targeted transgenic vector
(Red luciferase)**

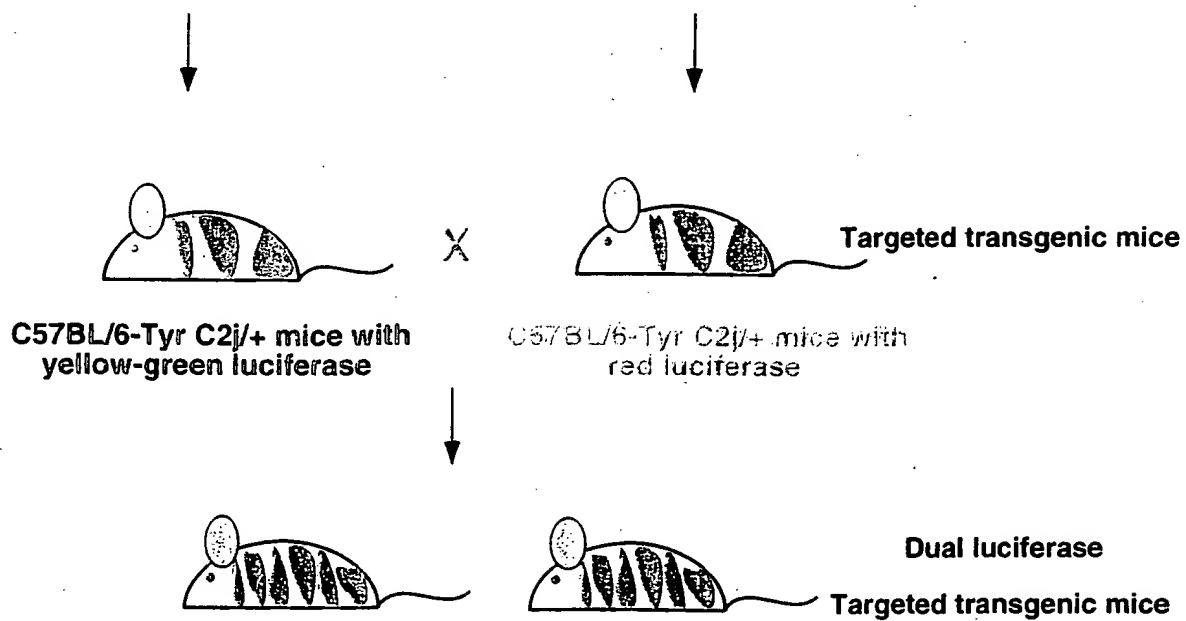


FIG. 10

	10	20	30	40	50	60	70	80	90	100
	AAATGCTGCTTTAGAACCCACTGCTCAAGCTTCTGCAAGCTCAGATTCCAAAGAAAGTCTGTAACACAGCATGATTAAGACAATGGACGGGCTAC TTTACACGACAGAAATCTTCGGTACGGAAGTCAAGAGCTGAGTCTATGGTTCTTACAGCAATGTGTCTACTATTTCTGTACCCCTGCCCAAGT									
	110	120	130	140	150	160	170	180	190	200
	AGTGCCTCCCGTCCCTTTCAGGGGATGAGACGAGCTGTAGAGAGTGTCTCAGGGAGTTTCAATTAATCAGCAATTTAGTCAATCTGTGCATCTTA TCACCGAGGGCAGGAAAGTCCCATTAACCTTGTCTGCAATCTCTACAGAGTCCCTCAAAAGTAATTAGTGTAAATCAGTCTAGACACGTAGAT									
	210	220	230	240	250	260	270	280	290	300
	TGCTTTACAAGAAATGTCAGTGGGCTGAGATCATCAAGTGAAGTTCAATCGGTTCAATGTCCGTAATCTTTGTAAAGCTTGAAGTTGGCAAGC ACGAATGTCTTTACAGTCAACCCGAGCTTAGTAGTCTACCTCCAAGTAGCCAAAGTTACAGGGCATAGGAAACATCTGGAACCTTCAACCGTTGCG									
	310	320	330	340	350	360	370	380	390	400
	AGGAAACAGGAACCTCAACCTGTGCTCCGTGAATTCAGAGCTGTGTGTGTTGTGACCATCTGCCCCATTTCTTCTGTATGACAGAGCTTGTGAC TCCTTTTGTCTTGAAGTGGACACGCGCACTTAACGCTCTGACACACAAACCAACTGGTAGAGGGTTAAGAGGACAAATACTGTCTCGAACACTTG									
	410	420	430	440	450	460	470	480	490	500
	TTTAACTGGGACTGGGCAAGTCAATCCCACTTTATACAAATGAATGTCTGAGAGGCCTTTAAACTTGAAGTGTGCATTTTATGGAAGGCTTT AAATTGACCCCTGACCCCGTTCAAGTAGGGTGAATATGTACTTAACGACTTCTCCGAAATTTGAACCTCACACGTTAACAAATACCTTCCGAA									
510										
CCATTTGGATC										
GGATTAACCTAG										

FIG. 11

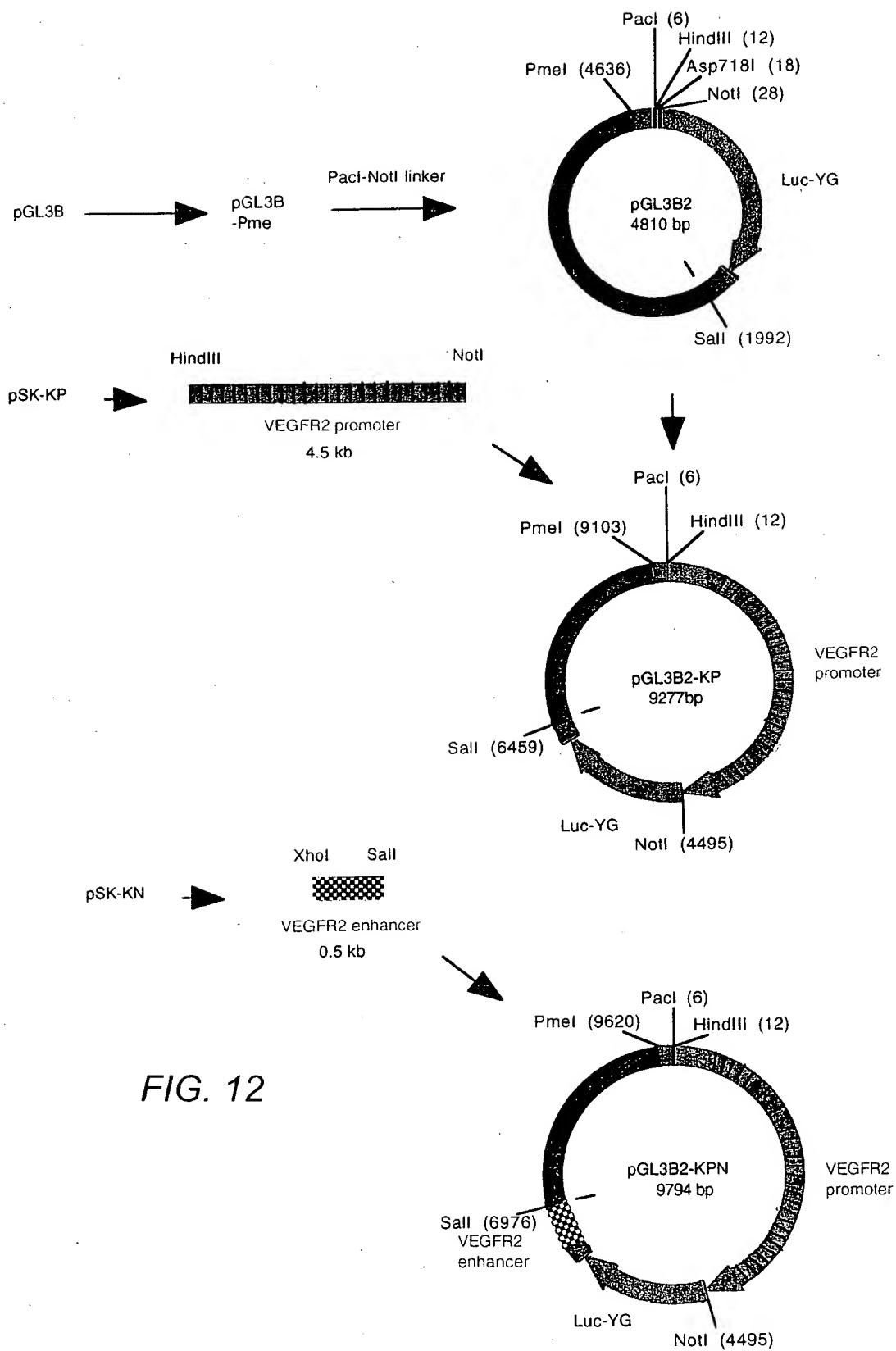


FIG. 12

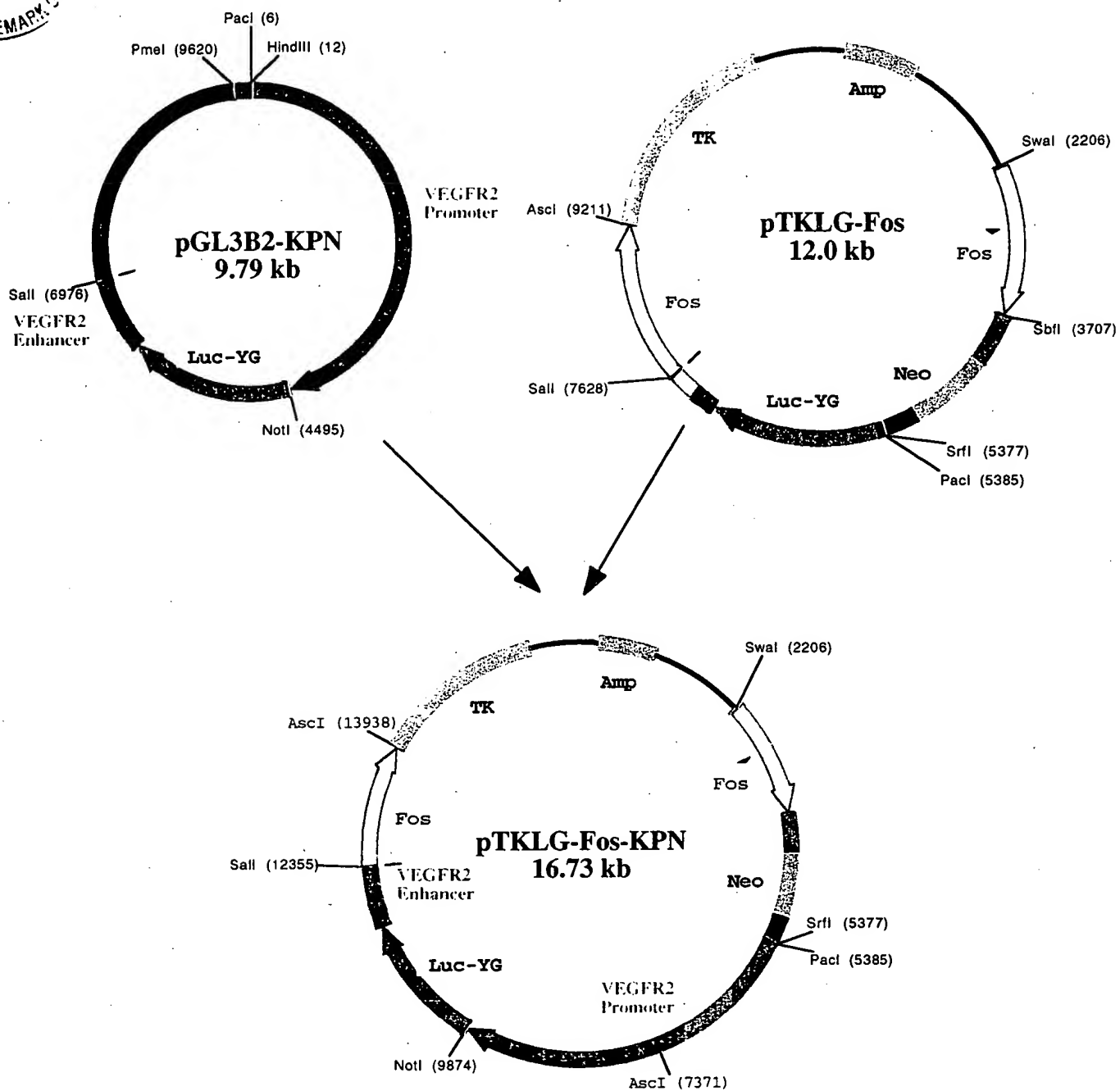


FIG. 13

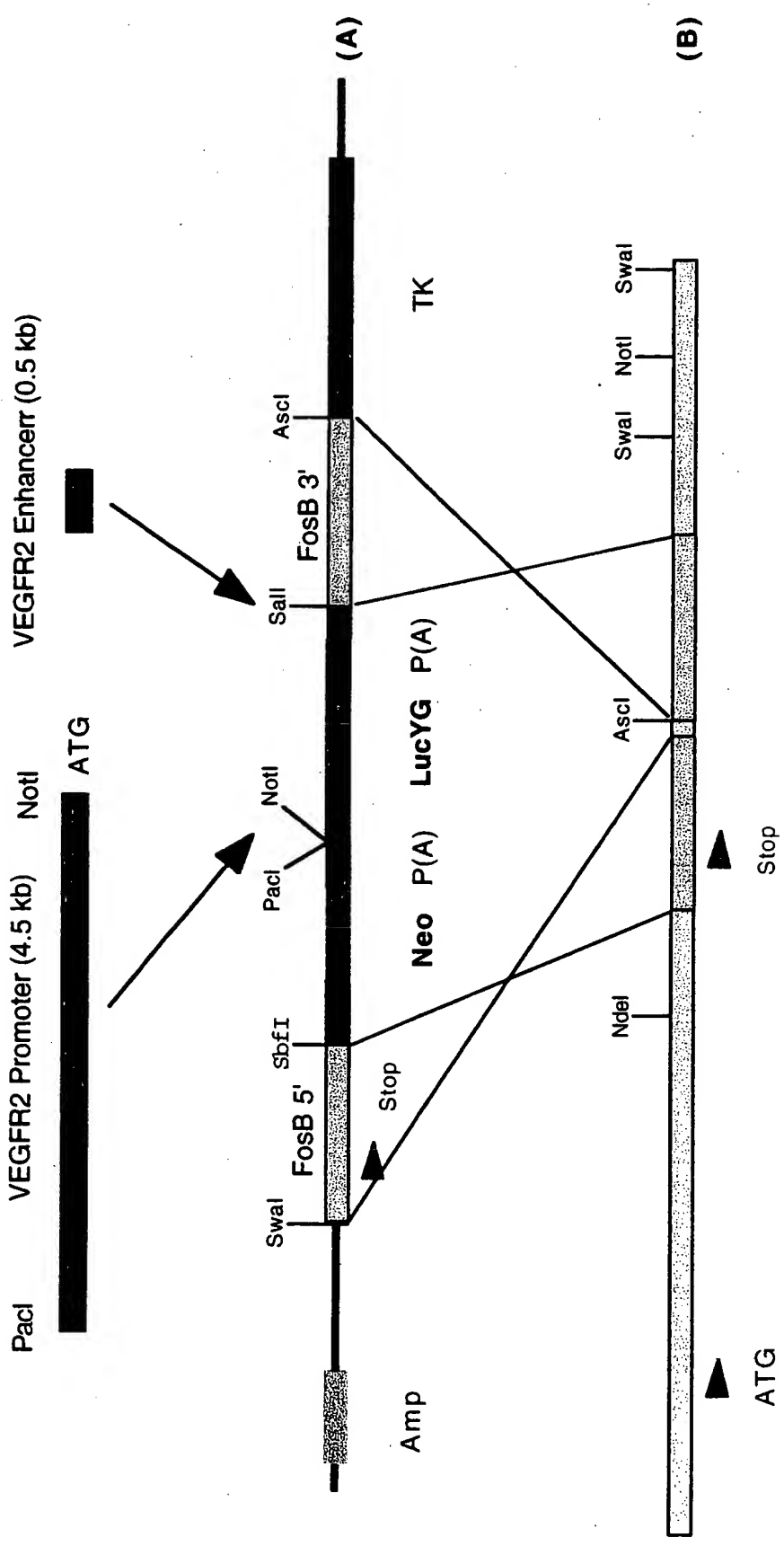


FIG. 14

[illegible]

FIG. 15-1



510 520 530 540 550 560 570 580 590 600
CTGACGACGAGATGCAGATGTCAGGCTATGATCCAGGTTGATGATCCGATCTGACTACTCAAGACTGTTGAAGGCAAGTTCACTTGGATTCACT
GACTGTCGTTTACGTTTACAGGTCGCACTAGGTCACACTCTAGGACTGATGAGTTCTGACCAACTTCCGTTCCAGTGAACCTTAAGTGA
610 620 630 640 650 660 670 680 690 700
CTATTTCGACGACGAGATGTTTAAATCCATCATATATATATATATATCTCATTTATAGGACAGTGGTTCTCAGCCTTCCATAAGCTGTAGCCCTTAA
GATAAACGGTCTCTACAAAATTTAGGTAGTATATATATATATATATAGAGTTAATGAATCCCTGTCAACCAAGACTCGAAGATTACGACATCCGGAATTT
710 720 730 740 750 760 770 780 790 800
TAGAGTCCCTCATATTTGTGATTTGTAATAATTTATTTTGTGCTACTTCATGACTAATTTTGTCTACTGTGAAGGGTCATTTTACCCAGGCTGTGAGACC
ATCTCAAGAGATTAACAATACTAATTTTATATAAACAACGATGAGTACTGATTAACAACGATGACACTTCCAGTAAATGGGTCGACAACTCTGG
810 820 830 840 850 860 870 880 890 900
CACATGTTGGAAACCACTACTTTAGAGGCAATGGGTTGGAAGACATGAAGATAGAGTAAACAGTGTCAAGTTTGTTCATTAATACAGAAAC
GTGTACAACCCGTTGGTGAATCTTCCGTAAACCCAACTCTTCTTGTACTTCTATCTCATTTGTCAACCACTCAAAACCAAGTAATATAGTGTCTTTG
910 920 930 940 950 960 970 980 990 1000
ATTCACTTTAAGTTTCAAGATGTTTGTGTGATATGATGATGTTGTAAGACTTCAACAGGTCCTTTCTTTAATCACCATACCTAACATCTTCAACCACTC
TAAGTGAATTTCCAAGTGTACAACAACACATATACATTAACATTTCTGAAGTGTCCAGAAAGAAATTAAGTGTATGATTTGTAGAGTGTGAG

FIG. 15-2

1010	1020	1030	1040	1050	1060	1070	1080	1090	1100
CATATCCATCAGCTTCA	CCCTTGACTCTAGCA	TTTGGCATTCACTCTG	TACAGGCGAGCATTC	ATTCTTTTGCACTCA	ATTGTTTCCATGTTT	TG			
GTATAGTACGAGTGACA	TGAGTCGTAAACCCG	TAGTACATGCTGCC	CTCCGTCCGTAGTAA	GAAACGTTGAGTGA	CAAAAGATCAAAAC				
1110	1120	1130	1140	1150	1160	1170	1180	1190	1200
ATTATTACCAACAATG	CTCTAGACATGAAT	TTTGGCTTTGACTT	TGCTTGGTAAACAT	CATAAAACAATCC	AGTGTGTGTGTG	GTCCGCTGCTG			
TAATTAATGTTGTTAC	GAGATCTGTACTTAA	AAACGAAACTGAAA	CGAACCATTTGTAG	TATTTTGTAGGTCA	CCACCAACCAACG	CGGACGAC			
1210	1220	1230	1240	1250	1260	1270	1280	1290	1300
CTGTGTGTGTAAAG	CAGAGCAATAAGT	CCCTTAATCTGTAT	TGATACAAATGTT	ATTCTTCCATGTAA	AAAGATGCGACTG				
GACCAACCAACCAAT	TTCGTCCTTCGTAT	TTCAACGAAATAAG	TAGACATAACTAT	GTTAACATAAAGA	AGGTACATTTCTA	TAACCGTAGACT			
1310	1320	1330	1340	1350	1360	1370	1380	1390	1400
AGTGTAGAGGTCTGA	ATTCAAACCTCACT	CAACAGATAGTAT	TACAGACTCAACA	ATAATAACACG	CTTGGCTGACTT	CAAGCCCTGTTG			
TCACATCTCCAGACT	TTAAGTTTGAGTGT	AGTGTCTATCATA	TAATGTCTGACTT	TTATTAATGTCC	GAAACGACTGA	AGTTCCGGACA	AGAACT		
1410	1420	1430	1440	1450	1460	1470	1480	1490	1500
CGTAAGTATATGAG	TAAATGCTAGAC	CCCTTAAGTTTAT	CACTTCAATAAT	TTATATAAGAC	CTACTATGAAG	GAGATAGAAGG	GTATGAGGTG		
GCAATTCATATACT	ATTGTACATCGT	GAAATCAAAATAG	TCAAGTATTATA	AATATATCTGA	TGATTAATCTTCC	CTATCTCCAT	ACTCCAC		

FIG. 15-3



1510 1520 1530 1540 1550 1560 1570 1580 1590 1600
GGTCATGGGATTAGAAAACGGTCGAGGAGAGAGATTAAACAAGCTAATTATGTTGAAAATGCCACAATGAACCTTAATTTACAAAAGAAC
CCAGTAACCTTATTCCTTTTGCCACCTTCCCTCTTCTCTTAATTGTTTTGATTAAACAACCTTTAAGGTGTACTTGGATTAAATGTTTTCTTGG
1610 1620 1630 1640 1650 1660 1670 1680 1690 1700
ACTATATGACCTTCACAGTGTGTCTAAGTCTTGGAGATTTAAGTGTGAAGAAGTCAAGTGTGTTTCCAAATCTCATGAGAGTGTATTCAGTTAGAGACC
TGATATATCGAAGTGTACACACAGATTCAGAACCTTAATCAACAATTCTTCAAGTCCACACAAAGGTTAGAGTACCTCTTACATTAGTCAATCTCTGG
1710 1720 1730 1740 1750 1760 1770 1780 1790 1800
ACAGAGCACATMAAAAGATTAGGCAAAATGTATGATTAGTACCATTGATATGAAAGGGAACACAGAACTAGTGGGAGACCTAATTTAGTTTGA
TGTCTCTGTATTTTTTCTATCCGTTTTTTACATACATCATGTGTACATTCTATACCTTCCCTTGTGTCTTGTGATCACCCCTGTGATTAAATCAAACT
1810 1820 1830 1840 1850 1860 1870 1880 1890 1900
GTGCTCTTCAAAGACCTTTAGAGCTGAGAACTAAAGACAGCAAGAGTGAAGGCAATCTCCACCTTTCCAGTGAATGAGCAACTTAGGGTATA
CACCAAGAGTTCTGGGAATCTTGAATCTTGAATTCTGTCTGTCTTCCACTCCCGGTAGAGGTGAAGGTCACTTACTCTTGAATCCCATAT
1910 1920 1930 1940 1950 1960 1970 1980 1990 2000
CAGCTGATTTCCCAATTTGTCAACAAGGCTCTTCAAGAGCTAGAGTCACTAATGATGACCAATACCAGCTTTTAAGAGGTTTCTGAGCATGTCCAAG
GTGCACTAAGGGTGAACAGTTGTTCCGAGAAAGTCTGTGATCTTACGTGATTACTACTGGTAAGGGTCAAAATTCCTTCCAAAGACTCTGTACAGGTTCTC

FIG. 15-4

2010	2020	2030	2040	2050	2060	2070	2080	2090	2100
CACCCTACCTAGGCAATTGGAAATCACAATGCCAGAGATGAGTACAGTCACTAAGCCAAACCTTTTCAAACTTCCAAAGCAATTAATCTCTCACT GTGGATGTGATCCGTAACTTTAGTTGTACAGCTCTCTACCTTCACTGTCACTAATTCGGTTGGAAAAAGTTTGAAGTTTCCGTAATGAGCACTGA									
2110	2120	2130	2140	2150	2160	2170	2180	2190	2200
CTCACAGACATATGGGCCCGAGTGTGGGAAGCTCTCATTTTCTTTGATTGCTTCTCTACATTCGAGATCCAAAGACAGTTATCTCAGCTAG GAGTCTGTATACCCGGGCTCAACAACCTTCGAGATTAATACAGAACTAACCAAGATGTAAAGCTTAGGTTCTCTCTCAATAGATCCATC									
2210	2220	2230	2240	2250	2260	2270	2280	2290	2300
AGGATCGTGAATGTCTGCCATGATTAATCTCAATTAATACCTGTAAAGTTATACCAATCTTAACACAGCTGATGTCCAGAGACATTTTGAACAGCT TCCTAGCACTTACAGACGGTACTAATTTGAAGTTAAATGACATTCATATGTGTAGGATTTGTGCACTACAGGCTCTCTGTAAAACTGTGCA									
2310	2320	2330	2340	2350	2360	2370	2380	2390	2400
GCTTACAAAAACCAAGAGCAATTTAGAAAAAACTGAGTCAACCAACCGTTCTGATTAATGATGAGAGAAAAATGGGATTAATCTTACAGATTAAGAA CGATTGTTTGGTCCCTCGTAATCTTTTTCACCTCAGTGGGTGCAAGACCTAATTAACCTCTCTTGTTTAACCTTAATAGAAATGCTCATACTTT									
2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
GTTACATAATTTTCTGGATTAATGAGAAATTAATTAACAATCAGCATCTTTTCTGAGCTGCAGAGGAAAGACAGGTGAAGCAATCTTTCCGGAAAT CAATGTATTAAGAGACCTAATTAACCTCTTAATTAATTTGTAAGTCTGAGAAAAAGACCTGACCGTCTCCCTTCTGTCTCCACTTCGGTTAGAAAAAGCCCTTA									

FIG. 15-5



2510 2520 2530 2540 2550 2560 2570 2580 2590 2600
GGAGAGAAAGATTGTGACTATTGTGGGGTTAAACAATACATCTTACTAGCATGGCAAGAACTGGGCTGCTTTACAGTAAGCAACCCAGTA
CTCCCTCTTTCTTAAACGATGATAAACCCCAATTGTTATGTAGAAATGATCGTACCGTTTCTTTGACCCGAGAAAGTCTCATTCGGTGGGGTCAT
2610 2620 2630 2640 2650 2660 2670 2680 2690 2700
GATCGTGAAGGCTGTGCTTTCAATCCAGAGAAAGTCAACAGGCCAGCATGCGCAATATGTAACCACTTAGGCTGAGGCAAGAAAT
CTACGACGTTCCGACAGAAAGTAGGGTCCCTTTCAGTTGTCCCGTCCGTACGGTCTTGTACGGGATTAACATTTGTGAATCCGACTCCGCTTTCTA
2710 2720 2730 2740 2750 2760 2770 2780 2790 2800
CAAAATCCAGGCCAGCTTAGTTGTGTAAACAAGCTTTGCTCAACAAGATTACAAACAACAAGCAACAATAATAAAGAGAGAGA
GTTTTAGGGTCCGTCGAATCAACAACATTGTTCTGAAACGAGTTGTTCTAAATGTTTTGTTGTGCTTTGTTGTTATATTTTTCCTCTCT
2810 2820 2830 2840 2850 2860 2870 2880 2890 2900
AAATTACTGCCAGGGAGGCTGTGAGCAATGAGACTTGATGATGACCAATCCGACAGTGAAGCTTGTCTTGAAGGTAAAGGCTTGCAATGTTT
TTTATTGACGGTCCCTCCGACACTCGTTACTTCTGAACTACTACTGTGTAAGCGGTGACCTCGGAACAGATCTTCAATCCGAAACCGTTACAAA
2910 2920 2930 2940 2950 2960 2970 2980 2990 3000
CCGAGTTTTCCATTCTGTGTTTATATGCGTTGAGGCCAGTGAATTCAAAATGCTCAGCTTCCAGGCTTTATACAGACATAATTAGCCACATGTGT
GGTCCAAAAGTTAAGACCAATATACCGAACTCCGGTCACTGAAGTTTACAGAGTGAAGTCCAGAAATATGTCTCGTATTAATCGGTGTACACA

FIG. 15-6



3010 3020 3030 3040 3050 3060 3070 3080 3090 3100
AGCTTGCCCTGTAATGCTGGCACTTGAGAGACCAAGACAGAGATTGCCACAAGTCTCCATCCAGCCTAGTGTGTGCACTCTGTCAACCCCTGA
TCGACACCGCAATTACGACCGTGAATCTCTGTTCTGTCTCTTAACCGTGTTCAGAGTAGTCCGATCCACGACACAGTGAAGACAGAGTGGGACT
3110 3120 3130 3140 3150 3160 3170 3180 3190 3200
CCCAGTCCCACCCAATCAACAAGGTATCACTGTGACACTGTACTGATGAGATCAATCACCCAGATTAAAGATTCTGGAGATCACTCTGGGATGCG
GGGTACGGGTGGTGTAGTTTGTCCGATAGTGACACTGTGACCATGACTGACTGTAGTGGGTCTAATTTCTAAGACCCCTTAGTCAAGACCCCTAACCC
3210 3220 3230 3240 3250 3260 3270 3280 3290 3300
GGAAGTGAGACCACTTAATTAATTAATTTCTTAATCTCATGAGATGATGATCCAGATGAGAAATTGTAAATTTAGGTTTATTAATTGAAGAAATAGT
CCCTTCACTGTGTCATTAATTAATTAAGAAATGAGTACTCTACTACCTAGGTCCTACTCTTAAATTTTAAATTCAAAATATTAATTTCTTATCA
3310 3320 3330 3340 3350 3360 3370 3380 3390 3400
GGTTTCTTCAGGTACATCTCTCCACTGTGGTCAATTCAGCTAAGGTCACTCCCATTTGATTCCTGTGAGGCTTCACATCCAGGTCCTGGGACTTT
CCAAAGAGTCCAATGTAGAGAGGTGCAACACAGTAAAGTGAATCCAGTGAGGGGTAACTAAGGACACTCCGAGAGTGAAGGTCCAGAGACCCCTGAAA
3410 3420 3430 3440 3450 3460 3470 3480 3490 3500
CTAGAGGTTCCCGCTGCTTCCACAGCCCTGAATAAGCTATTCTAATTCAATTCCTCGGCAATTCGGGCTTCTCTGTCCTCCCGCCCAACCAACCT
GATCTCCAAGGCGCAGAGAGGTGGGACTTTTACGCATTAAGATTAAGTAAAGAGACCCGTAAAGACCGAAGAGAGAGAGAGGCGGCTGGGCTTGTGA

FIG. 15-7



3510 3520 3530 3540 3550 3560 3570 3580 3590 3600
GATCTGCCCCCTTCTCTCCCCCTTCTCTCTAAACCAAGTCCCTCCCTCCCTGCTTCCATGATTAATTTGGTTCCCTCCTAAATGAGTCTGA
CTAGACGGGGGAAAGAGGGGGAGAGAGAGATTGGTCCAGGAGGAGAGACGAAGGTACTAATAAACAAGGAGAGATTTACTGAGCTT
3610 3620 3630 3640 3650 3660 3670 3680 3690 3700
GCATCTCACTTGAACNTTCTCTTGTAAACTTCATATGCTCTGTGAGTTGATTCATGGGTAATCTGTACTTTTGGCTAATGTTCACTTACACT
CGTAGAGTGAACCTGNAAGAAGACAAATTGAAGTATACCAAGACACTCAACATAGTACCCTAAGACATGAATAAACCGATTACAAAGTGAATAGTCA
3710 3720 3730 3740 3750 3760 3770 3780 3790 3800
GAGTCAAAACGAGCATATCTTTTGAAGTTGGGTTACCTCACTCAGATGATTAATTTCTAGTTCTATCCATTCCCTGCAAAATTCAATGATGTCCTAAT
CTACGTTTGTCCGTAATAGAAAACCTCAACCCAAATGAGTGAAGTCTCTACTAATAAAGATCAAGATAGGTAAGCGGACGTTTAAGTACTACAGATTA
3810 3820 3830 3840 3850 3860 3870 3880 3890 3900
TTTTAGTAGCTGATAGATATTCATTTGTGTAATGAACCATTAATTTTCTGCACTGTTCTCAAGCTGAGGAAATCTGGGTTGTTTCCAGCTTCTAGGTAT
AAAATCATGACTTATCATAGGTACACATTTTACTTGGTATAAAGACGTAGACAAGAGTCACTCCCTTAGACCCACAAGGTGCAAGATCCATA
3910 3920 3930 3940 3950 3960 3970 3980 3990 4000
TATTAATAAGCTTGTCTATGAATAGTGAACACATATCTTGAAGTATGTAGACATCTTTGGGTATATATCCAGAGTGAATAGTTGGGTTTTCAG
ATATTATTCACAACGATACTGTATCACTTGTGTATAGAACTCAATCACTCTGATAGAAAACCATATATAGTCTCACTATCAACCAAAAGTC

FIG. 15-8



4010 4020 4030 4040 4050 4060 4070 4080 4090 4100
GTGAACATATTTCCATTCTTAAGAACACAGATTGATTTTATAGACAGGCCCCCTAGTGAAGATGGGCCCAACACCTTCAAAAATT
CATCTGATTAAGCTTAAAGATTCTTGGTGGCTTAACATAAAATCATCTGTCCGGGATCACTCTTACCCGGTTGTGATGGAAGTTTAA
4110 4120 4130 4140 4150 4160 4170 4180 4190 4200
TGTTCAGAAATTGTTCTCTTAAGAAATGCAGGGACAAAAATGAACAGAGCTGACCAACCACTTAGATCCATCTATGGCAAGCAACCAAC
ACCAGTCTTAACAAGAGATTCTTACGTCCCTGTTTAACTTTGTCTGACTGGTTGGTTGAATCCTAGTAGGATACCGTTCGTGGTTTG
4210 4220 4230 4240 4250 4260 4270 4280 4290 4300
CCAGCTCTATTATGATGCCATGTTGTCTGACAGACAGAGCTTACATGGCTGTCTCTGACACCTTATCAACAGCTGACTGGACAGATGCAAG
GGTCTGAGATAAATACTACGGTACAACAGAACGTCTGTCTGAATGTAACGACAGAGACTCTGTGAGATTAGTCTGACTGACCCGTGTACCTCT
4310 4320 4330 4340 4350 4360 4370 4380 4390 4400
TGCCAACCCCTGAAGTGAAGTCCAGGACCCCTATGGAAGATTAGGGGAGGTTGAAAGAGCTGAAGGGATGGCAACCCATAGGAAAAAAGTGT
ACGGTTGGAACTTGAATCCAGTCCGTGGGGAATACCTTCTTAATCCCTTCCAACCTTCTGACTTCCCTACCGTTGGGTATCCTTTTGTCAACG
4410 4420 4430 4440 4450 4460 4470 4480 4490 4500
AACTAACCCCTCAGAGCTCCAGAGACTAAGCCACCACTAAAGAGCATAGGGCTGTTGTGTCCCTGGCAGAGACTGCTTGTCTGGCCCTCAGT
TTGATTGGAGTCTCAGAGGCTCTGATTGGTGTGATTCTCTGATTACCCGACCAACAACAGGAGCCGTCTCTGACGGAACAGACCGGACTCA

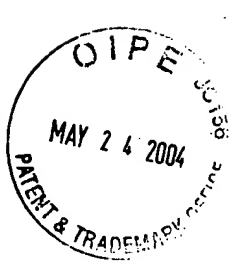
FIG. 15-9

FIG. 15-10



5010 5020 5030 5040 5050 5060 5070 5080 5090 5100
TTAACAATGTAATGACTCTTTAGAGTTTGAGACAGGCGCTCATATAGTTATGATGAATTCAGTGTGTTGCAAGAATGACCTTGAACCTTTAATCC
AATTGTATCATTAATACGAAATCTCAAACTCTGTCCCGAGTATCAAACTACTTAAGTGACAAACAGTTTCTACTGGAATCTGAGAAATTAGC
5110 5120 5130 5140 5150 5160 5170 5180 5190 5200
ATTCCAAAGTGTGTGTCATATGTTTGACCACTCCGTGCTTCATAGTGTTTTAAACACCCATGAGAGTCGGGTGAGAGTCCACACGCTTAAC
TAAAGGTTTACACACAGTATACAAACGTGCTGAGACCGAAGTATCAAAATTTGTGGTAACTCTCAGCCACACTTCTAAGGTGTGACAGATTG
5210 5220 5230 5240 5250 5260 5270 5280 5290 5300
CTCAGCATCTGTGATCAAGCAGAGCGCGGTGTGACGCTGCTATATATCTAAGTTTCAAGTTAAGGCTGCATTAATGAACAATGTCCT
GAGTCGTAGACCACTTAGTCCGTCCTCCCGCCACCAACGTCCGACCGATTATTAAGATTCAAAAGTCAATCATTCGCCAGTATTACTTTGTGACAGAA
5310 5320 5330 5340 5350 5360 5370 5380 5390 5400
AAACACAAAACCAAAACCCATGAGAGAGTACTATTTGCCATTAAAGTCTCTGGAATGGAATAGCTATCATATCTTAACTCTGAGCCAGTGTCTGCC
TTTGTGTTTGTGTTTGGGTACTTCTCTATGATTAACGGTAAATTTTCAGAGACCTTAACTTTATGCAATAGTATTGAATGGAGACTCGGTCAACAGACG
5410 5420 5430 5440 5450 5460 5470 5480 5490 5500
CTCAGGTGTGCTGAGACTGAACAGGCTATGCACTCTCAGGTTGAAACATTACTAGTCTCAGGTGTCTGCTTTGAACAGCTGAGTCAAG
GAGTCCACACGAGCTCTGACTGTCTCCGATACGTGAGAGTCAACCTTTGTAATGATCAGAGTCAACAGAGAACTGGAACAATTGTGCACTCAGTCTC

FIG. 15-11



5510 5520 5530 5540 5550 5560 5570 5580 5590 5600
GGTTCGCCCTCAGCTGTGCTGAGACAGACTGACCTATCTACCCCTGCAGATTGGAAGCATTAACAGCACTCAAGATCAGCCCTGAAGTATAAAC
CCAGACGGAGTCGACACGCACTCTGTCTGCACTCGATATAGTGGGACCTTAACCTTCGTAATGTCCTGAGCTTCTAGTCGGGACTTCACTATTTCG
5610 5620 5630 5640 5650 5660 5670 5680 5690 5700
TAAGCAGAAATCCACCAAGCTAGCAGTGCCTCCGTCTCTTCTGTGCTGTGGAAAGAGAGGGCAGTCTTCTTGATGCAAGCTGTGTCTC
ATTCCGTCTTTAGGTGCTTCACTGTCACCGAGCACAAGAGAAGACACCGACACCCCTTCTCTCCCGTCAGAGAGAACTACCTTCCAGCACACAG
5710 5720 5730 5740 5750 5760 5770 5780 5790 5800
TAGTGCAAGCTTCTTCATTCCCACTGAGAGCACTGATCACTGGGTAAAGAGCTTCAAGTGCCTGAGCTCGCTGAGAAATTCATCATCTCATTC
ATCACCGTCAGAGAGTAAAGGTCACTCTCTTCACTAGTGAACCATTCCTTCAAGTCCACGCACTCGAGCGACCTTTAGTAGTAGTAGTAG
5810 5820 5830 5840 5850 5860 5870 5880 5890 5900
ACTCTGCTCCCTAGACATAATCACTTCTGTGGTCTTTATAGAGATGATTTATTAACCTTGTGTTTATGATTTTATGAAATGTGTGATTTCAATTAGG
TGAGACGAGACATCTGTATTAGTGAGACACCCAGAAATATCTTAATAATTGAACAACAATAATCAAAAATACCTTACACACATTAAGTAAATCC
5910 5920 5930 5940 5950 5960 5970 5980 5990 6000
TCACATGGAGGTACATTTTCAAGGTGTCTCTTTCATTCACACGGGCTTGAATTAACTCAGCTTGGTTTACCGGCTGAGCCATCTACCTGCC
AGTGTACCCCTCCATGTGTAAAGTCCACAGACAGAAAGTATGTGCCGAACTTAATTGAGTCAGAACAAATGCGCATCGGTAGAGTGAACGG

FIG. 15-12



6010 6020 6030 6040 6050 6060 6070 6080 6090 6100
TGATTATTAAAAATCTCCGAGTAATCCAGAGTGTGTTATGATGTATCAACTCCGAGGCTGAGGAGCATCGTTATCATGAGCTCCAGG
ACTAATAAATTTTAGAGGCTCATTTAGTCTCTCAACCAATATCAATCATATGTTGTGAGCCCTCCGACTCCCTCGTAGCAATAGTACTGAGGTCC
6110 6120 6130 6140 6150 6160 6170 6180 6190 6200
CTAGTTCAGGCTTGCCCTAAGCTGTAGAGCAAGTCACTCTTAAAGTGCCTCTCCCATATTTTGTATATATTTGCAATCGAATCTGTGTTGCCA
GATCAAGGTCCGAACGATTGCAATCTGTTCAGTGAGAGATTTTTCACGAGAGGCTAATAAACATATTAACGTAGACTTTAAGACAAACGCT
6210 6220 6230 6240 6250 6260 6270 6280 6290 6300
ATACTATGAATTAATTCACATTACATAAATCTTCTGTGCCAAGTTCTCCAACGAATTAGATCACACTCAGATGAATGCTAATAAAATTAAAGCTGT
TATTGATACTTTAAAGTGAATGATTTTAGAAGAGACAGGTTCAAGAGTGTCTTAATCTAGTGTAGTCTACTTTACGATTATTTTAATTTGACA
6310 6320 6330 6340 6350 6360 6370 6380 6390 6400
AGCAGTAGCATGCGTATATTTGGGCTCAGGGCCACAGGACAGCGATCTGGGTGTAAGAAATAGGCTAATGCTGTGAATCTGCTCTAGTGGCTC
TCCGTCACTGTAAGCATTAACCCGAGTCCCGGTGTCTCCGTCCGCTAGACCCACATTTCTTTATCCGATTACCGACACCTTAGACAGAGTCAAGAG
6410 6420 6430 6440 6450 6460 6470 6480 6490 6500
CGCTGAGAGCTGACCTCAACCAAGCTCCCTCAAAATTGATTGCTTCCAGGTTATGATTTCTATCAACAGAACTTTGTGCCAATTCAAACCTGTCA
GCCACTCTGACTGAGTGTGTGCGAGGAGTTTAACTAACGGAAGTCCAAATAAGAGTAGTGTCTTTGAACAACGGTTAACTTTGGGCACTCT

FIG. 15-13



6510 6520 6530 6540 6550 6560 6570 6580 6590 6600
GTGAAAACAAAACAGAGACAGAGTCTGCTCCCGTGCCCCAAGCCCTTGTGAGGATCCCAATGCAACCCAGAGACAGCTTAGCCTGAAAG
CAGTTTGTGTTTGTCTCTGCTTACAGCAGAGGGGCAAGGGGTTGCGGAGAGACAGTCCCTAGGGTTTACGTGGGCTCTTGTGGAATCGGACGTTT
6610 6620 6630 6640 6650 6660 6670 6680 6690 6700
GGCTGCTCTCATCGCATACCATTAAGGTGAGGGCTTGTTAATTCATTTCCGACCTATGAGAGATACCCCTATTGTTCTGAAAATGCTGACAGG
CCGACAGAGTAGCGTATGATATGATCCACCTCCCGAACATTAAGTTAAGACCGGATACCTCTCTATGCGGATTAACAAGACCTTTTACGACTGCTCC
6710 6720 6730 6740 6750 6760 6770 6780 6790 6800
ACCTTACTTGTAAACAAGATCCCTCTGCCCCACAATCCAGTTAAGCAGAGACCGGACGACAGACAGAGATTAAGCCTTGATGAAGGCAAGA
TGGATGACATTTGTTTCAAGGAGACGGGCTTAAAGTCAATTCCTGCTCTGCTCCGAGCTCGTCTCTGCTTCTTAATCGGAACCTACTTCCGTTCT
6810 6820 6830 6840 6850 6860 6870 6880 6890 6900
TGGATTAGGGCTGCTCTGCCCCAAGCCCTGCTGATACCAAGTGCCTTTAAGATACAGCCTTCCCATCTTAATCTGCAAGGAAACAGAAAAAGAACT
ACCTATCCCGACGAGACGGGGTTGCGGACGACTATGCTTACCGAATTTCTATGTCGAAAGGTAGGATTAAGCGTTTCTTGTCTCTTTTCTTGA
6910 6920 6930 6940 6950 6960 6970 6980 6990 7000
TAACCTCCCTGCTCTAGACAGAAATGAGACTGTTACCGCCTGCTTCTGTGCTGTTTCTCTTCCCTTCCGCAACTTGTAAACAAGACGAGTGAACCATGC
ATTGGAGGAGACAGAGTCTGCTTTTACTGTCAATGCGGAGCAGAAACACCAAAAGAGAACGGCGTTGAACATTTGTTCTGCTCACCTGTGACG
7010 7020 7030 7040 7050 7060 7070 7080 7090
GAGCGGAGAGTCCGAAAGTTGTGAGTTGTGAAGCTTCCAGGAGCTCATGCTCATCTGTGACGCTGAGTGGGAGATCTGGGGAAGTATG
CTGCGCCTTCAAGCTTCAACACTCAACAATTTCGAGAGGCTCCCTGAGTACAGATAGACACCTGCGACCTAACCCCTTAGACCCCTTCAATAC

FIG. 15-14

10 20 30 40 50 60 70 80 90 100
CTGAGGTCAGTATGCGTTCTCAACCTCTTGGCAAGAGGCTGCAAGGACGACAGAGATTGAAACAGCTTTAGAGAAAATGCTGCGTTAGAC
GAGCTCAGGTCATACCGAAGAGTTGGAAGAACCGTTCTTCCGACGTCCTGCTGCTTCAAACTTGTCAAGATCTTCTTTACGACGAATCTCTG
110 120 130 140 150 160 170 180 190 200
AGTGGCAATGGGGATGGGAGACAGTATCTGTGTTGCAATAGAGGCAAGTCTTCCAGTGTGGGAACAAGGCAAGAGGCGAGGATAGAGCAAT
TCCACCGTTACCCCTACCCCTCGTCAATAGACCAAAACGTATCTCCGTCAGAGAGTTACGACCCCTTGTCCGTCCTCCGTCCTACCTCGTTA
210 220 230 240 250 260 270 280 290 300
GATGCTCTGTATGTGTCCTGTTCAGTTTGCATTTAACTGAGCAAAATTGCGTTTGCATCTGCACTCAAAAGAGTAAATTAGCAATGACTG
CTACCGAGACATACACAGGACAGTCAACGTAAATTAGACTCGTTTAAACCGAAACTGTAGAGTTGAGTTTCTTCCATTAATCCGTTACTGAC
310 320 330 340 350 360 370 380 390 400
ACACATAGATATCTTAATAGTCAAGAAATTTTTTTTTTTTGAAGAGTTAGCAGTCAAGGATGGTAGAACTGCAAAACCAATCCGATCTTTC
TGTATCTATAGAAATTAAGTTCCTTAAAAAATTTCAATCTCAATCGTCAAGTCCCTACCATCTTTGACGTTTGGTTAGCATTAAGAAAG
410 420 430 440 450 460 470 480 490 500
TTGAGATTTTACAGAGTGTGCTACTAGCCACAAAAGAGTTTAACTGGAGAGAGTAAGATGACAGCAACAGGTGACAGGCTCCAGGTCGTAG
AACTCTAAAAATCTGTCAACTACGATGATCGGTGTTTCTCAAAATTCACCCCTCTCTCATTTACGTCCGTGTTCCACTGTCCGAGGTCCAGACATC

FIG. 16A

510	520	530	540	550	560	570	580	590	600
CAATAGCTTACAGATGAGATTCTTTACAGAGAGGACGCTGCAATGGCTAAAGCAGATCTGGAGGGGCCAGAGATCAGCTGGCGCACTCCAG									
GTAAATCGAATGTCTACTTAAGAAATGTCTCTCGGTCCTGACGTAACCGATTTCGTCTAGACCTCCCGCGTCTCTAGTCGACCGCGGTGAGGGTC									
610	620	630	640	650	660	670	680	690	700
CTTCCAGGAAAGCAACCTTATTTCTGGAAATTTAACTGATPAACCAATTCACACAGCTGGCCAGGCTCTTCTTACCTCACAATCAACAACAGA									
GGAGGTCCTTCCGTTGGGAATTAAAGCCTTAAATTTGACTATTGGGTTAAGGGTGTGGAACCGTCCGAGAAGAAATCGAGTGTAGTGTTCCTCT									
710	720	730	740	750	760	770	780	790	800
AGGATTTGTTTAAATGAGTCAATGCTTGAATTCCTTTCTATACCTTCCAAAGCAATTTATATAAGTTATTTACCGCCGTGTGTGTGTGTGT									
TCCTAACAAAATCTTACTCTAGTACGAATTAAGAAAGATGAGTGAAGGTTCTGTGTTAAATATTTTCAATAATGCGGGCACACACACACACA									
810	820	830	840	850	860	870	880	890	900
GT									
CAC									
910	920	930	940	950	960	970	980	990	1000
CATGAGCAAGCAACCTTGTGCTGT									
GTACTTGTGTGTGAAAGGAGGAGTACAGGAGGT									
1010	1020	1030	1040	1050	1060	1070	1080	1090	1100
GATGGGCAAGATCTTACTCTTTGGCAATTTGT									
CTACCCGCTTAAAGATGAGAAACGTTAAACACGACTACCCCTCACTTATGGGTACCCCTGTACCGACAGTACACACCTTCACTATCTTACTTTT									

FIG. 16B

1110 1120 1130 1140 1150 1160 1170 1180 1190 1200
CATGTAATGGATCTGTTCACAGAGCTGTGTGAGGCTGATGGGTGTGTGGGTGGCCACTGTTTGGCTCTGTGTCACAGGCTCTTGTTCAGAGGCTGTATCA
GTACATACCTAGACAGTGTCTCTGCACCACTCCGACTAACCCACACACCAGGTGACAAACGAGAGACGAAACAGTGTCCGAGAAACAAGTCCCGAACTAGT

[illegible][illegible]

1410 1420 1430 1440 1450 1460 1470 1480 1490 1500

CCGAGAGCTACTACTGCTCGGAGCGCTCAGATGGTGAACCGCGCTAACCTTGGCACAACAAGCGCTGCGTTCAGAGGCCAAA
GGAATCTCGATGATGACAGCCACCGGCAGTCTAACCACTTGGCGCCATTGGAAACCGTGTCTCCGAGCCGACATGTTCCGACGACCGACGTCGCCGTTT

1510	1520	1530	1540	1550	1560	1570	1580	1590	1600
GAGACTCCACCTTAGGACAGAGTACTT	CAGACATCTGGAACTGGGATGGCTTT	AAAAATTCAGATCCCAATATAAAAA	ACAACACACCTCCAAA	CACTCTGTCTCTCATGAGTCTGTAGAC	CCCTTAGACCCATACCCAAA	TTTAAAGTCTAGGGTATATTTT	TTTGTGAGGGTTTCTTT		

	1610	1620	1630	1640	1650
	CAGACG	AATTA	AAAAA	AAACCA	GCTCC
	CAAGTA	AAACA	ATATG	TGACCC	
	GTCGCT	TAATTT	TTTTT	TGGT	CGAGG
	TCATTT	GTGTAT	TACCAT	G	

FIG. 16C

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MAY 24 2004
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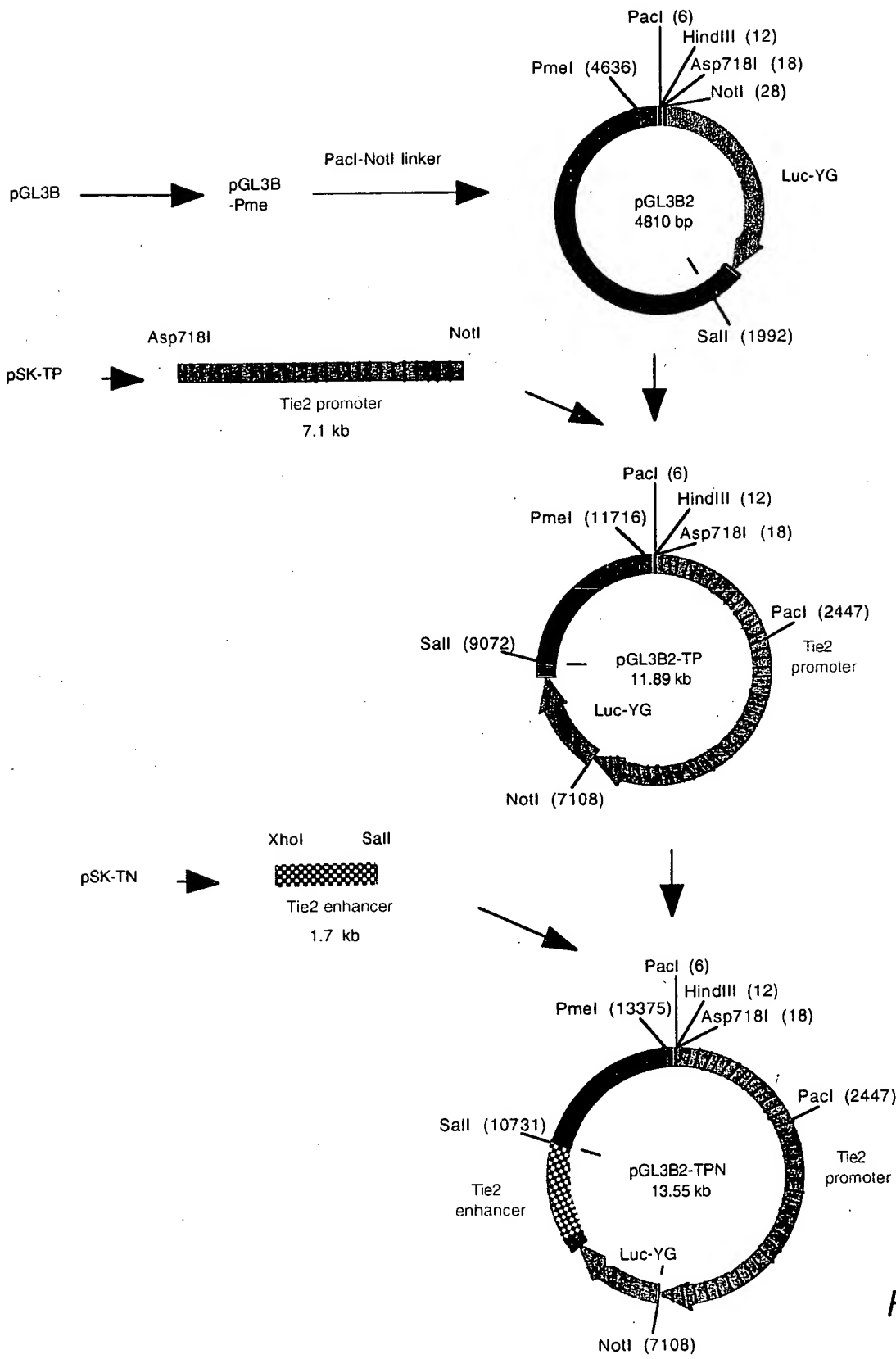


FIG. 17

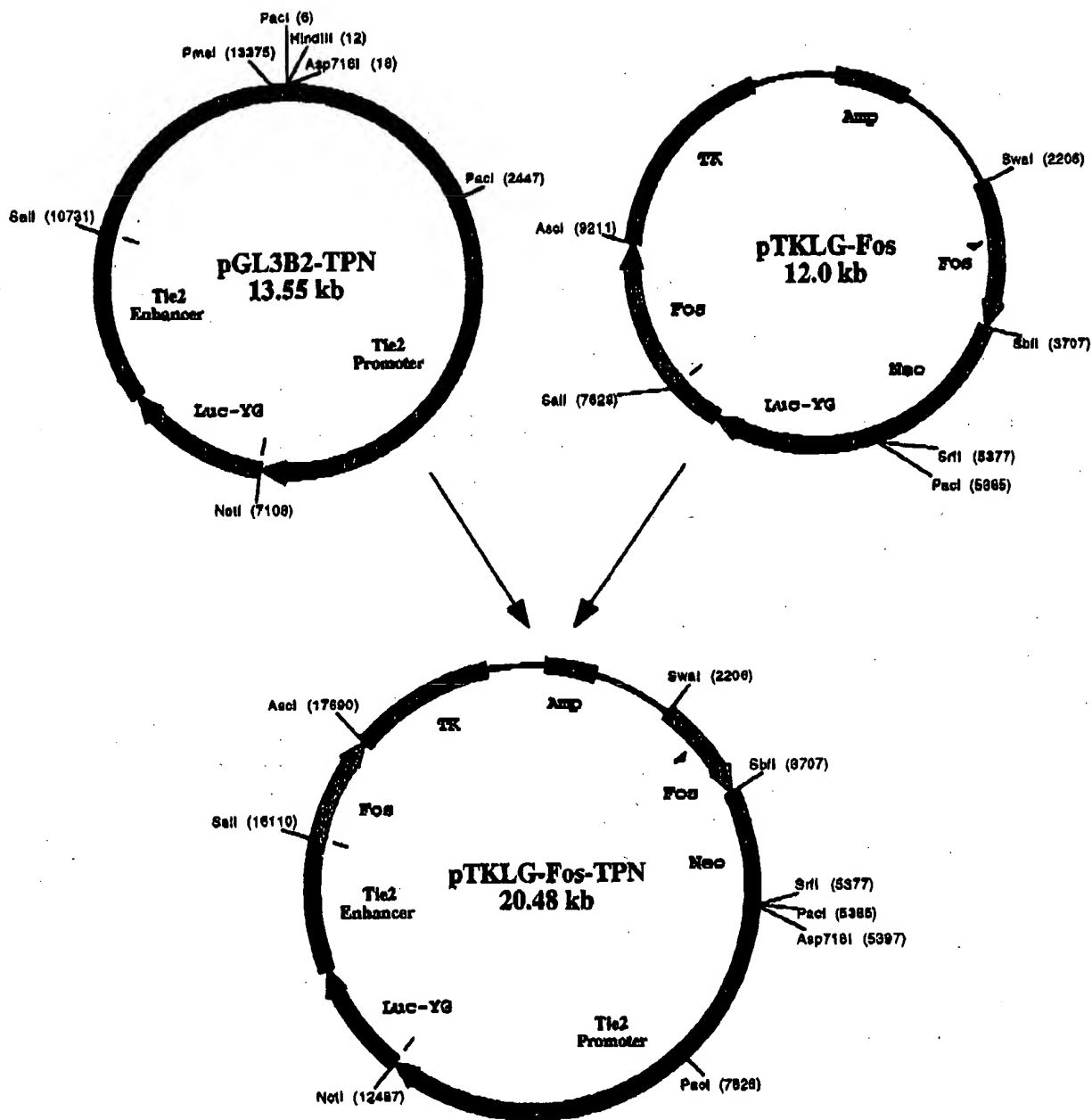


FIG. 18

Targeting Tie2 promoter-yellow green luciferase transgene cassette to FosB chromosomal locus

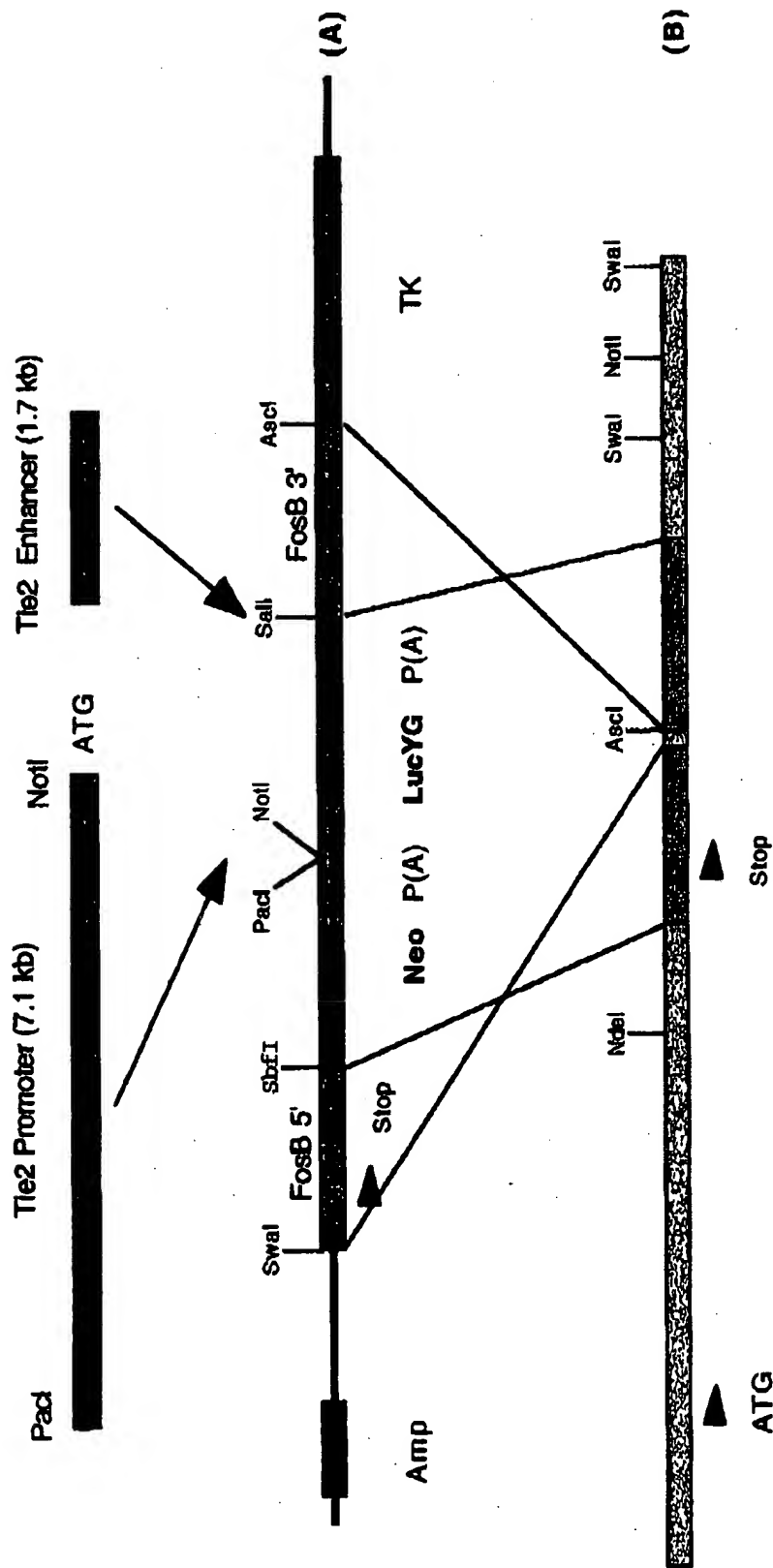


FIG. 19

A. Targeting vector pTKLG-Fos
 B. Mouse FosB gene

Neo: Neomycin; TK: thymidine kinase; LucYG: yellow green luciferase from pGL3B (promega). Regions bearing FosB gene translational start and stop codons are indicated with arrows. The Tie2 will be cloned into the polylinkers between Neo and LucYG. Upon homologous recombination, the Neo-Tie2-LucYG transgene will be inserted into the FosB gene.

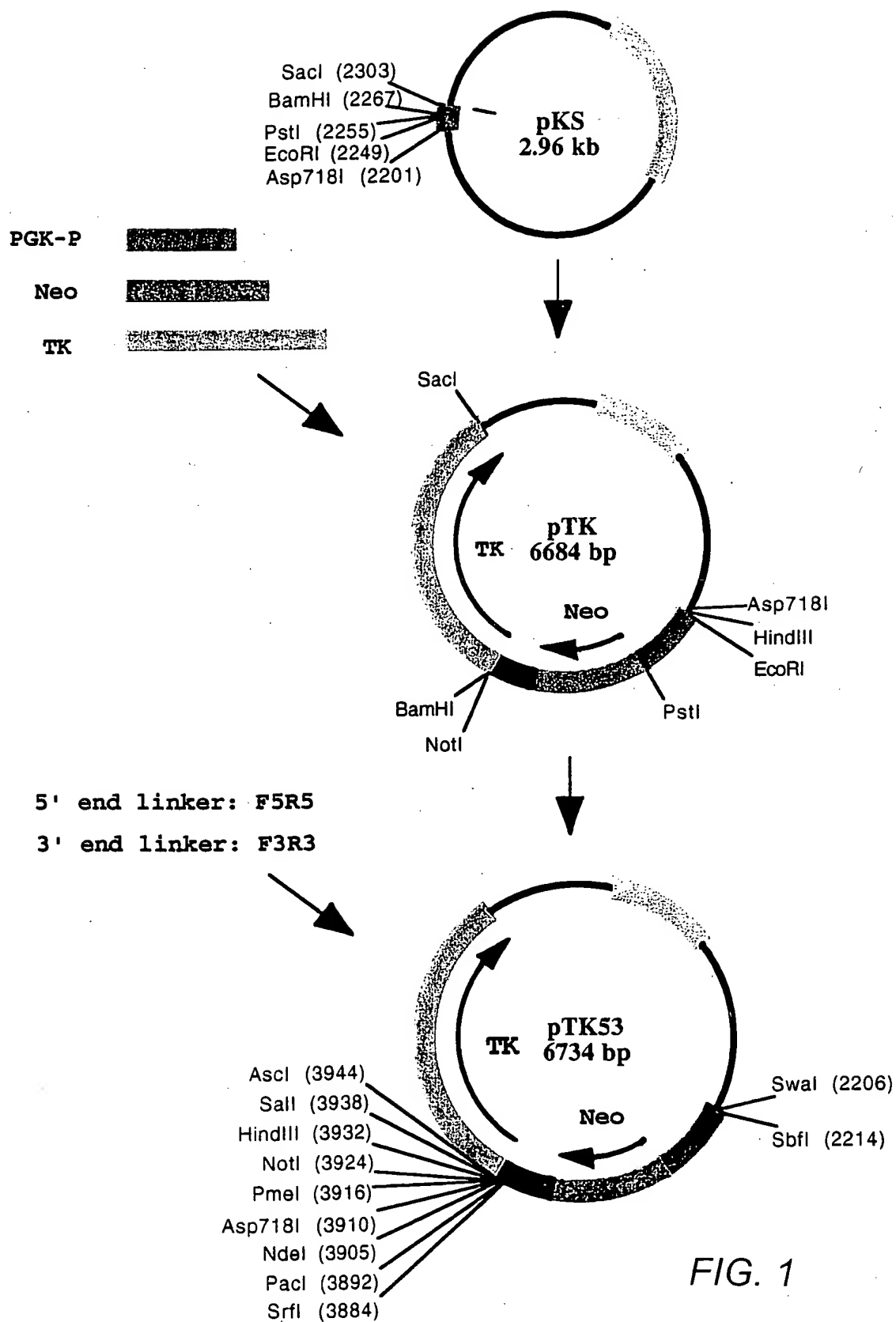


FIG. 1

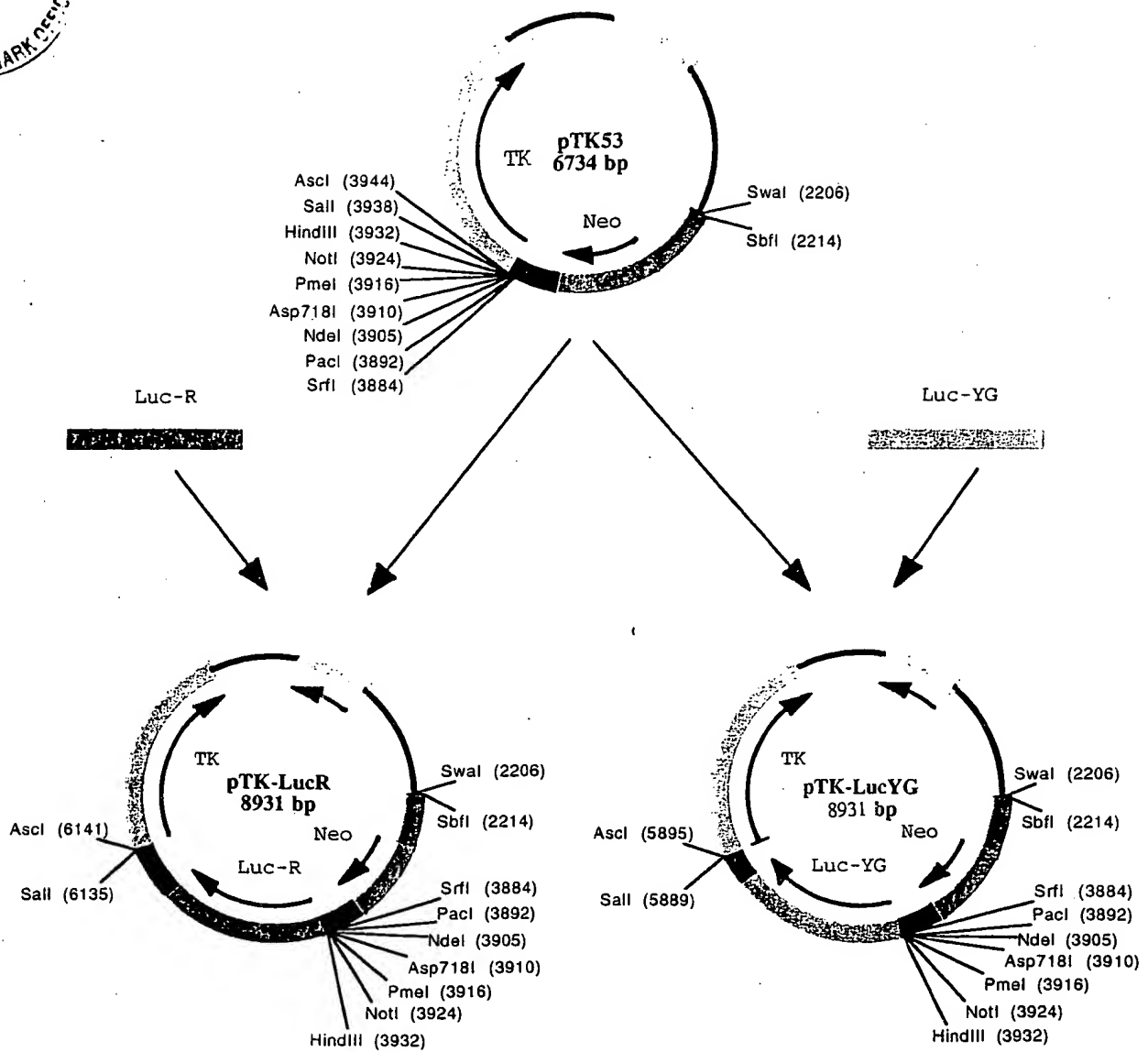


FIG. 2

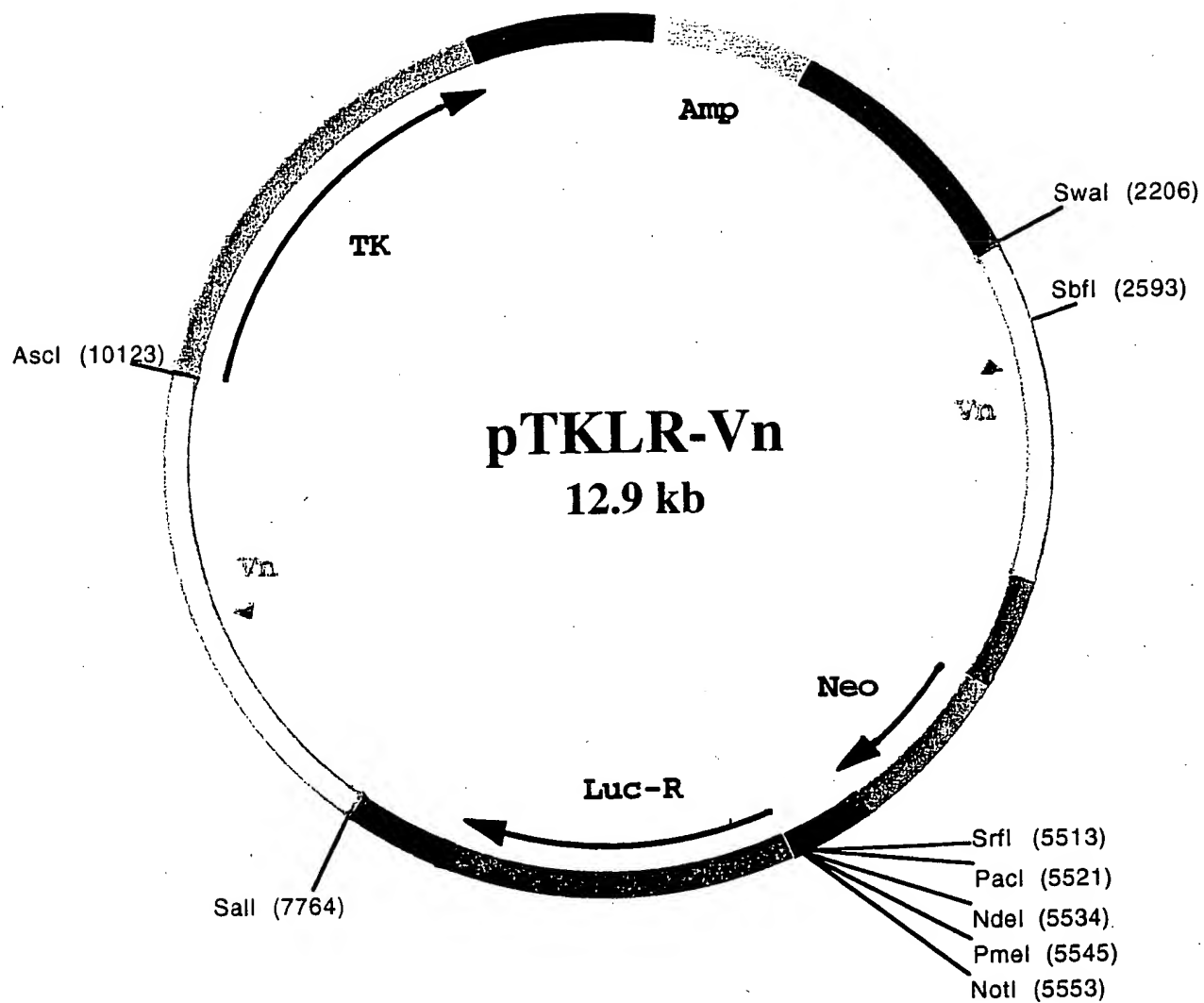


FIG. 3A

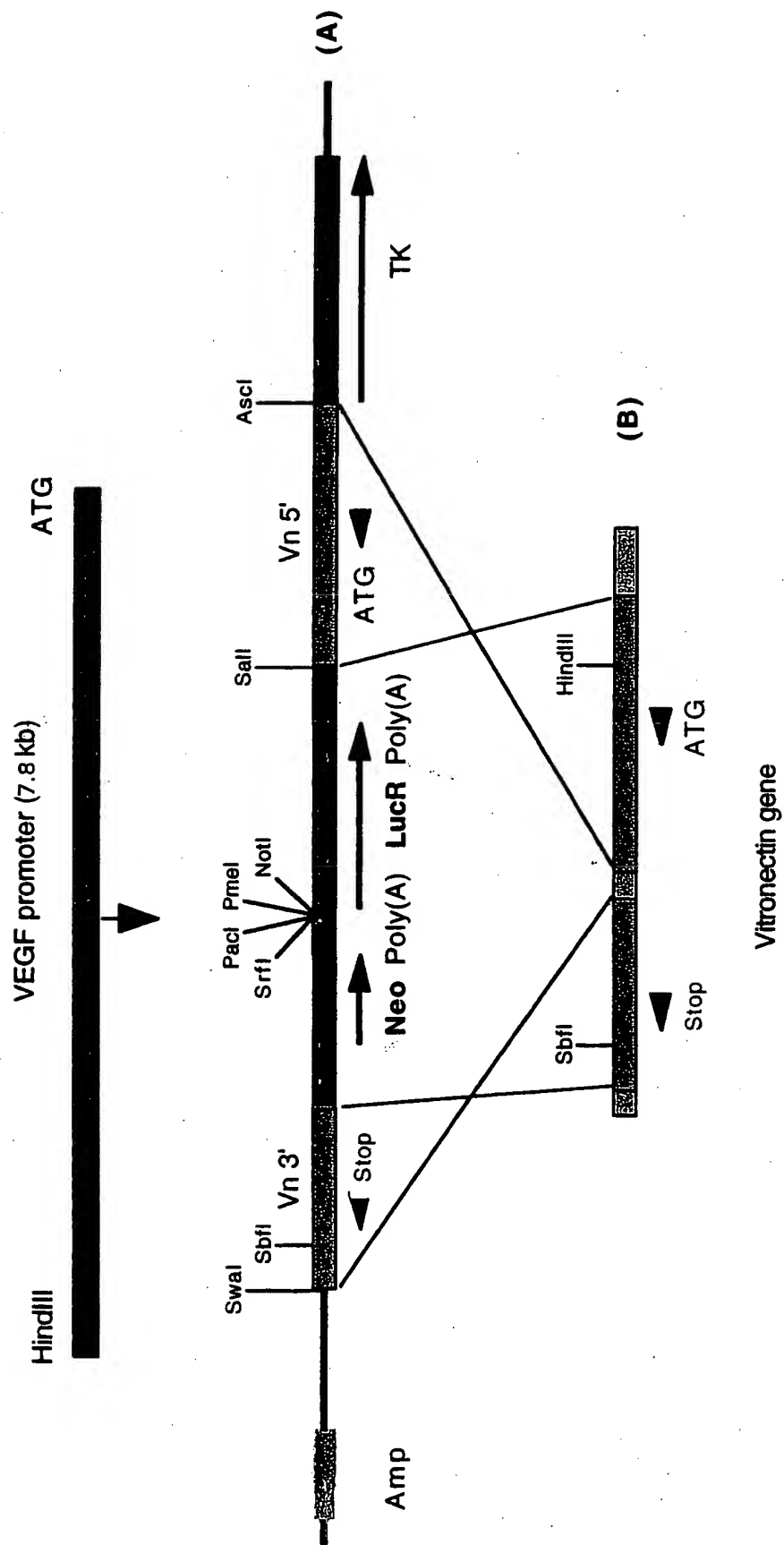


FIG. 3B



1 T00A00A00C T00T00C0A0C G000000000C T000A0T0A A0T0A0T00T T0A0A000C T0A000000 A000T000T G00A0A0A0 G0A0000T0C
A00T000T0G A0A0A0A0T0 G000000000 A000T0A0T T0A0T0A0A A0T0C0T00G A0T000000 T00A0A0A C00T0C0T0C C0T00A0A
101 C00A0A00C C00A0T0C0T C0A0T0T0A0G G0A0A0A0C G0A000A0T A0A0T0C0T C0T00C0T0A A000T0C0G A0A0T000A C0T00C0T0C
G00T0T00G G00T0A0A G0A0A0A0C C0T00T0G0A C0000000C T0C0A0A0A G0A0A0A0T T0A0A0A0C T0T0A0000T G0A000000G
201 T0T00A0A0G G0A0A000C0G C00A0000T T0A0A0A0T A0T0C0T0A0C T00T0A00A C0A0C0T0T A0T0000T0G G0A0A0A0A T0A000A0C C0C0T0C0T A0T00A0A
A0T0A0T00C C0T0C000A0C G00T0000T0A A0T0C0T0A T0A0A0T0T0 A0C0T000T G0C0A0A0A T0A000A0C C0C0T0C0T A0T00A0A
301 G0A0C0T0A0C C0A0T0000T C0A0T0C0T0A C0T0C0A0A G0T000000C C0A00A0A C0A0A0A0T G0A00T000T A000A0A0T C0A0A0A0C
C0T00A0T0C G0C0A000A G0A0A0A0T G0A0A0C0C C0A0000T0G G0T000T0A G0C0T0T0A C000A00A T00C0T0C0T0A G0T0C0A0G
401 A0T000000G T0C0A0A0T G0C0T0000G T0T0T0C0G A0A0A0A0A T00A0A0A0G G0T0A0T0A0G A0T0C000T A0T0C0T00A C0T0T00A
T0A00000C A0A0T00A C0A0000C A0T0A0A0A0C T0T0C0T0T A0C0T0T0C C0A0A0C0C T0A0A000C T0A0A0A0T G0A0A00T
501 G0A0A0T0A G0C0T0T0C0T C0A0A000A A0T0A0A0C C0A0A0A0G A0A0A0C0C C0A0A0A0G C0T0T0A0G C0A00A000A C0A0A0C0G
C0T00A0T0T C00A0A0A G0C0T0C0T T0A0C0T0A0G G00T000C T0T0A0A0G G0A0A0T0C G0A0A0A0C G000T00C0T G0T0C0A0C
601 C0A00A0A0C C0A00A0A C0A0C0T0A0G G0A0A0A0G G0C0T00A0C C0T0A0A0A G0A0T0A0G C0C0T0A0T0G G0T00A00T G0A0A0A0C
G0C0T0T0C G0A00T0T0T G0T0A0A0C C0A0C0T0C C00A0A0T0C C00A0A0G0G G0A0C0C0C0T C0T0A0C0C G0A0C0T0A0C C0A00T00A C0G0T0A0T
701 A00A0A0T0A T0A0T0A0T A0A0T0T0G T0A0T0C0T0A G00A0C0C0C C00C0T0A0G A0A0A0A0A A0C0A0T0A A0G0A0T0A C0A0000A0T
T00T0A0A0T A0A0A0T0A T0A0A0A0C A0C0A0A0T C00T0A0A0G G0A0A0C0C0C T0T0T0C0T T00C0T0A0T T0C0A0C0T0T G0T00C0T0A
801 T0A0A0C0C0G G0C00000G T000A000C C0000000A A0A0A0A00C T0T0000T0C T0A0C0T0A C0T0C0T0T T00C0T00G C0A0T000A
A0C0T0A0C C0A00A0C A000T000G G0A000A0C T0C0T000G A0A00A0A A000A0A0T G0A0A0A0A A000A0A0C G0C0A00C
901 T0A0A0A0A G0T0A0T0A T0000000C C0T0A0A0G T00A0C0T0C C000A0A0C A000A0A0T C0000000A A0T0000T0C T0T0000T
A0T0C000T C0A0A0A0T A0000000G G0A0T000C A0G0A0A0G G0A00T00G T0A00T0A0G G00A0C0T0T T0A000A0G A0A00A0T

FIG. 3C-1

1001 TIGIPIACAG GAGAGGTT AATACACTIG GAGATITIG GCTTGGTTT CIOGAGAG GTCITICIG TACITATTA TCIATITTA TCIATIGMIC
AGACITIGT COTIOCCA TTAGTIGAC GCTIPACAG CAGACIATA GAGTIGTTC CAGAGAGG AITAGIATAT AGTIGIATAT AGTIPACAG
1101 TACITATTA TCIATIGMIC TACITATTA TCIATIGMIC AACTITIG CTAITIGTIT AITATITAT CTAITITTA CTAITIGTIT TACITATTA
AITAGIATAT AGTIPACAG AITAGIATAT AGTIPACAG TCIATIGMIC GATIGIATTA TCIATIGMIC GATIGIATAT GATIGIATTA AITAGIATAT
1201 CTAITITAT TCTITIGTIG TITITITTA AAGAGATIT TACIACIAC CTAITIGTIG TITIGIACIT AITATIGAC CTAITIGAC CTAITIGTIG CTAITIGTIG
GATIGIATTA AITAGIATAT AITAGIATAT TITIGIATTA AITATIGAC GATIGIATAT AITATIGAC AITATIGAC TCIATIGTIG GATIGIATIG
1301 AITAGIATAT AITATIGTIT GCTITIGAT GCTIGIATTA AITATIGAC CTAITIGAC CTAITIGTAT AITATIGTIT GATIGIATIT GATIGIATIT
TCTITIGAC TCIATIGTAT CAGACITTA GATIGIAT TITIGIAC GATIGIATIG GATIGIATTA TCTIGIATAT CTAITIGTAT GATIGIATTA
1401 GATIGIATTA CAGACITIG TCIATIGTAT CAGACITAT TCIATIGTAT TITIGIATAT CTAITIGTAT CTAITIGTAT TCIATIGTAT CTAITIGTAT
GATIGIATIT GATIGIATIT AITATIGTAT GATIGIATIG AITATIGTAT AITATIGTAT GATIGIATIT AITATIGTAT AITATIGTAT GATIGIATIT
1501 AITATIGTAT GATIGIATAT CTAITIGTAT TCIATIGTAT AITATIGTAT GATIGIATAT CTAITIGTAT CTAITIGTAT CTAITIGTAT CTAITIGTAT
TCTIGIATIT GATIGIATIT GATIGIATIT AITATIGTAT TCIATIGTAT CTAITIGTAT GATIGIATIT GATIGIATIT GATIGIATIT GATIGIATIT
1601 CTAITIGTAT CAGACITTA CAGACITTA TCIATIGTAT CAGACITTA GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT
GATIGIATAT GATIGIATIT GATIGIATIT AITATIGTAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT
1701 AITATIGTAT TCTITIGTAT CTAITIGTAT GATIGIATAT CTAITIGTAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT
TCTIGIATAT AITATIGTAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT
1801 AITATIGTAT AITATIGTAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT
TCTIGIATAT TCTIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT
1901 AITATIGTAT AITATIGTAT GATIGIATAT AITATIGTAT TCIATIGTAT AITATIGTAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT
TCTIGIATAT TCIATIGTAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT GATIGIATAT

FIG. 3C-2



2001 AGAOCCTTC OCEOCACIG TMAOCSTGG CAGAGAGGC GAGOCCTCA TCACATCT CTGATGCC ACTGAGCCT TCGAGATCT TTCGGGAGTA
TCTGAGAG GOCGGTAC ATTCACACC GTCCCTCCG CTTCAGCT AGTTPACA GACATPAG TACTTCCA AGCCTTACA AGCCCTAT
2101 AGAAGGTTC AGAGCCCAT CCTACAGG CAGATCTCA CTACCTTGA AGACAGAT CAGAGGTG AGACATPAC CTTGCCCA GAGACGTCC
TGTCCAGG TCTGGGTA GAGTTCOC GTCTAGCT GATGGACT TCTCTCA GTCTCCAC TCTGATGG CAGCGGTGT CTTCAGAG
2201 TPAATCTPA ACTGCTGTC ACTGCTCT GAGTCCGT ACTGCTCT CTTCACCT CCCCAGAG TCCATGCCAC CCTTACCT GCTCAGCT
ATATAGAT TCAACAGAG TGAACAGA CCTAGGAC TGAACACA GAGTGTGA GGGTGTGT AGTACCGTG GAAATGGA CAGGTCTGA
2301 TAGTCTGT ACTTGAACA AGTATGCT CCCCAGAG TTAGCCAG TGAAGCAC ATGATGGG CCTTACAT CCAAGATC TTGATAGT
ATCCAGACA TGAATCTGT TCATCAGAA GGGAGCTG AACTAGCT ACTTCGTG TACTACCC GAGATPAG GGTCTGAG AACATTTA
2401 TTGGGTACC CAGCCTTAC TCCGTCTA TCMATCAT AGACATCT CCTTACAA GGGAACTG TGTAGAAC AGATAGCCT AAGCAGATC
AACCCATGG GTCCGAGTG AGGAGAGT AGATCAGTA TGTATPAC GAGTCTGT CCCCITGAC ACCTCTTG TCMATCGGA TTCCGTGAG
2501 CAGACCCAC CAGACTGTC CATAGATCA CCTGAGAG CAAAGGGA CCTATCTG AGTTCCTGA AGCGTCAA GGGCTTCA CTGCAGTT
CCTGCCGTG GTCTGAGAG GTATCTAGT GAGCCTCC GTTCTCCT GGTAGAAC TCMAGCCT TCCAGATT CCGAAAGT GACGTCTAA
2601 CTTCCTTGG AACTPAGG GTCCCTGAT CAGTGTGTC GGGCTTGG ATTCCTCT GTTCCTAC TTAGGCCCT GGGTCTTG CTTTCTC
GAGAGACC TTGAGTCC CAGGACTA GTACACAG CCGGATCC TGAAGAGA CACAGGTG AATTCGGA CCCCAGAC CAGAGAGG
2701 AGATCTAG AGGTCTGTC GCTTAGAT GCGTCCGT CAGGATTA GTTACCGG TGAAGGTG TTCTGGGT GCACCCGT GTTGATTTG
TCCAGATCC TTCCAGAG CAGATCTA CGCAGCGG CTTCAAT CAGTCCOC ACTTTCAC AAGACCCA CTTGCCCA CACCATPAC
2801 TCTTGGCT CCTACAGTA GTATAGCT CATAATCAT CCTTGGAT AGTGAACAG TCCCTCCG TTACTGAG CAGACCGG AGCATGAT
AAGAACCG GAGGTCTT CAGATPAG GTTATGTA GAGACCTA TACTGTG AGGGGGGC AATGAGTCC GTCTTCCC TGTACTCA
2901 GTTACCTGT GAGAGACC CAGCCCCAC CCAAGAGG TGTACTCA CCTTGGCT TCCATCTG CATGATGTC GCACAGAC TGTATGTA
CATCCACA CCTCCCTG GTCCCGGT GGTGTCCG AGCTGAT GAAACCCA AGTGAAGG GTACATGAC CTTGTCTG AGATTCAT

FIG. 3C-2



3001 AGTCCAAAC TGTCTACT GACCTCTT GTTGGGCTG AACCTGAG TCGAGGGCC CTTCATGAC TCTATGGAG GAAATGAG GTTACAGC
TCAAGTTTC AGCATGTGA CTGTAGAA CAGCGGTAC TTGGAGTC AGTGGGG GAGCTATG AGTTCCTC CCTTATGTC CAATGTGCG
3101 CATCTAGAG CACCTGCGA ACCTGACT CCTATGAC CACATGTC CCTGACAC CTGTGAGC CAGAGAAC CATTGACCA GGGCTATAT
GTATGATCC GTGAGGGGT TGAAGTGA GGAATGAG GTGTGAG GAGGGTGT GACAGTGT GTCTTTGT GTAGGTGT CCGATGATA
3201 GAAAGAGC CTCAGGGGT CATTGAGG CCTGAGCC AGGGCTGT CAGCTGGC GGGAGCTC TGAATCTG CTGTCTGC TGAAGAGA
CTTTTCCG GAGTCCGAC GGTACCTCC GAGATGCG TCGGAGAC GTTGAACG CCTGAGAG ACTTATGAC GACAGAGG ACTTTTCT
3301 AGCAGCTGA AGAAGTTC CTAGTCTT GGTTCCTC CCTTATTT CTATCTCT GCGGAGCC CATTGCTC CTCCAAAC AGCTGACCA
TGTCTGACT TCTTCTAG GATCAAGGA CCAAGAGC GAAATTAAC GATGAGGA CCGGTGCG GTAGGGAG GAGTTGTG TGAAGTGT
3401 AAGGTCACA TTCCAGAC CCGAGCGA GAGAGCTG GAAAGAGA ACCTGCGA AGACAAAT CAGTAGGT AGGGCAGA GGAATACAC
TTCCAGTGT AAGGCTTG GGTGGGGT CCTGAGC CTTCCTTT TGGAGCGGT TGTGTTCA GTATCCAG TCGCGTCT CCTATTTG
3501 GCTTACTTA GTTGGGAG TGAAGAG CATGTTGT CACCTTGA GCGATGCG TTAATCTC TGACTTAC TTATTAATA GTTGAACAT
CGATGAT CAGCTCTC ACCTTCTC GTACACCA GTTGAAGT GGTGAGGC AATTAAGG ACTGGATG AAAATATT CACCTGTA
3601 GTTCTTTC CTATCAAGT GTTGAAGT TGTGAGCT AGACAGCA AAGCTTTC TCGTGAAT AGCTTCAC TCAATCCAT AAGCTTAT
CCAGGAGC GATGATCA CACTCTTA AGGATCTGA TCTGTGT GTTGAAGC AGGACTCA TGAAGGTG AGTAAGGA TTGCGAATA
3701 GATTTACT TTGATCAG CTAGTCTT GTCCATCT ACCTGCGT TGAATCTG AATTTGCG CAGAGGGG GTTGGGGA GAGCTGCAA
GCTAATGAC AACTGATC GATCAGGA CAGGTAGA TGGGGGGA AGCTTACG TAAAGACC GTTCTGCC CAACTGCT CTGACCTT
3801 GCACTTGG GAGGTTC TTCTCTCT AATAAGAC AACTCTAT TTCTGCTC TCTGTCTC CTATAGCT GTTATGAG GTTATGAG CATTGAAT
CGTGAACC CCTCAAG AAGAGAG TATTTCTG TTGAGGA AGAGCGAG AGAAGGA GATTCGAC CCAATGTC GATCTCTA
3901 AGTGGTGA AGTCAATCT TCTTCTTA TTTTGTAG AATTTAT TTATGTTT GTATTAAT GTCTCTAC ATGTCACT GTGACACA
TCACTGAT TCAATAGA AGAAGAT AAAAAAT TAAATAA AATTAAG CACTTTCA CAGAGAG TACAGTGA CAGTGTGT

FIG. 3C-4

4001 TCCATGCTT GTCTATGAG AGCTGAGAG AGCTCTTGA ATACCTGGA ACTGAGCTT TGAAGCTA TGACTGCG TGTGATGCT GAGATCAAA
AGCTAGAA CAGAGTACC TCCAGCTTC TCCGAACT TGTGAGCT TGACTGAA ACTGTCAAT ACTGAGCG ACCTAGGA CTCTAGCTT
4101 CCAAGCTCT CTGTAAGAG AGTACTCTT AAGCTGAG CCACTCTTC AGTCCAGAG CCACTCTCT AGCTTTC TATCATG AGCTCGCG
GGTCCAGGA GACTCTTG TCCATGGA TTCCAGCT GGTGAAGG TCAAGCTC GGTGAAGAC TCCGAAGTG ATTAGTAC TGAAGCCC
4201 GACCACTTG GCAACACTT CATTGACT ATTATTTA AAAAAAT GACTCATG GCACTCTT CTAGCTAC ATACTAGTG GATTTCT
CTGTGGAG CCGTGGGA GTTCTGAG TAAATAAT TTTTTTTA CCTGAGTAC CCGTGAAG GATCTAGTG TATGATTC CTAAGAGA
4301 ATTAAGAGT GCTCATGAG GTAGCTGC AGCTTGGG CCAATTC ACACTGGA CACTCTGA GCGCTCGT TTCTCTCT GTATCAGAG
TATTTCTA GAGTGAAC CACTCAGG TCCAAAAC GGTTAAGT TGTGAGCT GTAGACTT CCGGAGGA AAGAGAGA CATGTGTC
4401 GCGAGCTGC CTTTGCTC TCTCTCAT GACCCAGT AGCTCAGG GCAATGGA ACCTAAT TTACTCTA CAGAGCTG AACCTAGT
CCTCCAGG GAAACAGAG AGAGAGTA CCGGCTCA TCAAGCTC GCTTACT TGTCTTAA AATGAGGAT GTCTCCAC TTCCATTA
4501 GGAACCGG ATTAAGGC TTGAAGAT TCACTGGA TTCTTACC ATCCGAGG GAGTGAAT CATGAGGA GCTTCTTC ACATTTGG
CCTTGGCG TATTTCCG AATCTTAG AGTGAAGT AAGAAATG TGGCTGCC CTGACTAT GTACATGCT GAAAGAGG TGAACACC
4601 GACCCAGAG AGCGTAGA AATGAGAG ACTCTTAC AGCTTCTT AAGCACTT GCACTACC AAGGAGAG TGGGAGAG AGCGAGCC
CTGGCTGC TCCCATCT TTACTCTG TCGAAGAT TCGGAGAA TGTGAGAA CGTGTGAG TTCCCTCT AGCCCTCC TCCCTCGG
4701 AGGTGCGG GTGCTGAG ACTTGCGTA GCTTGGCC TCGTCCGG GCGAGCGG TGAACCTG AGCGCGCG TCAATCTT GACTCTCT
TCCAGACCG CACCGACT TGAACCAT CCGAGCGG AGCGAGCC CCGTCCGC ACTTGATC TCCGCGCG AGTTAGAA CTAGAGAC
4801 CTGAGAGCG TGTGCTCT TGAATCTT ACTCCCTG TCTTAAAT GAGCAGGC TTGTTCGG GCAAGCGCT CTCTACCT CCGCTCTG
GAGTCTCC AACAGGA ACTGAGAA TCGAGGAG AGAATTA CTTGTGCG AAGAGCC CTTGCGGA GAGTGGAG GCGGAGAC
4901 TCCATCTCT TCTCTCTT CAGCCCTC CTAGCTCT GAGTCCGA GCTCCCTC TCCCTCTCT TCACTCTG TACCCAGA CTTTACCG
AGGTAGAG AAGAGGGA GTAGGAG GATCAGGA CTAGGCTT CAGCGGAG AAGAGAG AGTGTGAC ATCGCTCT GAAATGCC

FIG. 3C-5

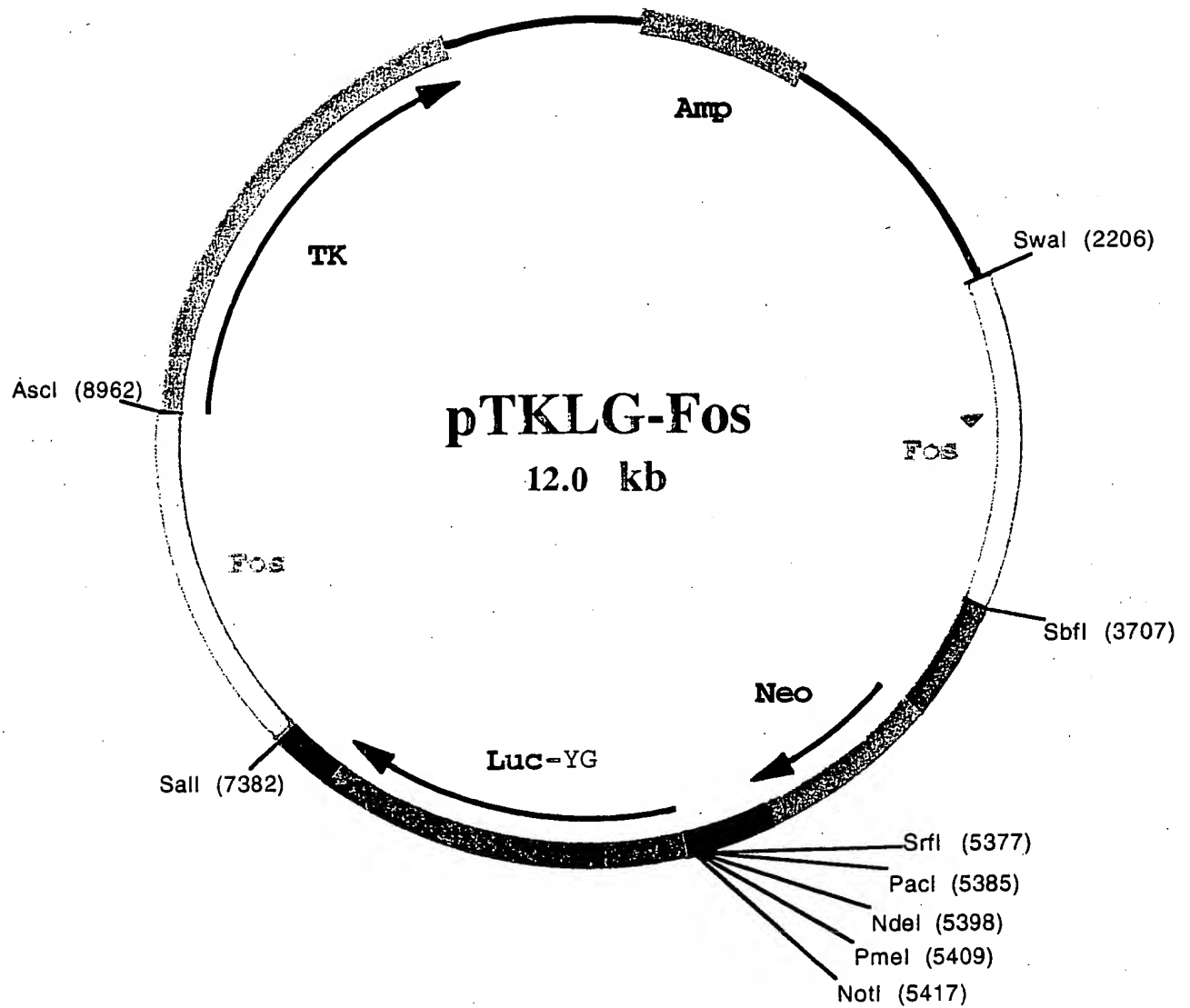


FIG. 4A



1 GAGCTGEC MARGTEC GATGECGEC GAGGHTAT ACCGECGEC TACGAGAC TGAAGCTT TACGAGAG CGGCTGCT AACGAGAC
CGTCAGAGG TTTCAGAGG CGAGGAC GTTCAGAGAG TCGAGAGAG AGGCTTTC AGCTTTCAGAG TCGAGAGAG TTGCTTCG
101 TACGAGAGG GCGAGAGAG AGAGAGAG AGCTTCAGAG GAGCTTCAGAG GAGCTTCAGAG TTCTTCAGAG AGAGCTTCAGAG GTTCGAGAGT
AGCTTCAGAG CGGCTTCAGAG TTCTTCAGAG TTTCAGAGGT CTTCAGAGAG GAGAGAGAG AGAGAGAG TTCTTCAGAGT CAGCTTCAGAG
201 ACCCTTCAGAG CAGAGAGAG TACGAGAGAG AACGAGAGAG AGCTTCAGAG CGGCTTCAGAG CAGAGAGAG GCGAGAGAG CGCTTCAGAGT CGGCTTCAGAG
TACGAGAGAG GTTCCTTCAGAG AGCTTCAGAG TTTCGAGAGAG TCGAGAGAGAG CGCTTCAGAGT CGGCTTCAGAG CAGCTTCAGAG
301 GAGAGCTTCAGAG GTTCGAGAGAG GCGAGAGAG AACGAGAGAG CGGCTTCAGAG CGGCTTCAGAG TGAAGAGAGAG GAGAGAGAG TTTCGAGAGAG CGGAGAGAG
CGCTTCAGAGAG GAGAGAGAG CGGCTTCAGAG TTTCGAGAGAG TCGAGAGAGAG GCGAGAGAGAG AACGAGAGAG GAGAGAGAG GAGAGAGAG GAGAGAGAG
401 GTTCGAGAGAG GAGAGAGAGAG CGGCTTCAGAG TGAAGAGAGAG TCGAGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
CAGAGAGAGAG CGGCTTCAGAG GAGAGAGAGAG AACGAGAGAG GAGAGAGAGAG AACGAGAGAG GAGAGAGAGAG GAGAGAGAGAG GAGAGAGAGAG
501 TTTCGAGAGAG GTTCGAGAGAG CGGCTTCAGAG GTTCGAGAGAG GAGAGAGAGAG GAGAGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
AGAGAGAGAG AACGAGAGAGAG GAGAGAGAGAG CGGCTTCAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
601 TTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
AGAGAGAGAG AACGAGAGAGAG GAGAGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
701 AGCTTCAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
TTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
801 GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
GAGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
901 GCGAGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG
CGGAGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG GTTCGAGAGAG

FIG. 4B-1

1001 TCCCTTACAG TCCCTTACAG CCGCTTACAG TCCCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG
1101 ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG
TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG
1201 TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG
ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG
1301 CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
1401 CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
1501 TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG
ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG
1601 TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG TCCCTTACAG
CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
1701 CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG ACCGCTTACAG
1801 CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
1901 CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG
CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG CCGCTTACAG

FIG. 4B-2



2001 TGCATGCAAT GAGATCCCT AGCAACCAAT AACCAAGAG TGGTATGCA GACCTGAC CCACTCTTC AGACGTGCA GCGACAGCA GCAAGATTC
ACGTMAGTA CTTCMAGGA TCGTGTGTA TTGGCTCTC ACCATACCT CTGACATTC GGTTCAGAG TCTTCAACT CCGTCTCTT CCGTCTCAG
2101 GAGGCAACC TGTCTACTT ATGAGTCCA GCGTCACTG CAGAGATCA TTAATTCCA AGTTCGCTT TGGGGGAGG TGGTGAAGG AAGTAAAGA
CTCGGTGCG ACACAGTGA TACTCAAGT CCGACGTGAC GTTCTGTGT AATAAAGTT TCAACCGGA ACCCGCTCC ACCACTCTC TTCACTCTT
2201 AAGTGACAGT AATTGTGTA CTAAATAGTT GAGGTTCCT CTGAGCCCT AAGTCTGAG GACTTACC ATTCTGCCA GTGAGAGTGA GGGTAAATTA
TTACTGTCA TTAACACAGT GATTAATCA CTTCAAGGA GACTCCGAG TTCAACTTC CTGAATTCG TAAGACCGT CACTCTCAT CCGATATAT
2301 TTGGGGTTC AGAGAGAGG AAGTTTCTT AGGCTGATA GAGTACCC CAGATCTCAT GGTCTTATC TGTACTGAG CTTAACCCAG AAGAGAGA
AAACCCAG TCTCTCTTC TTCAAGGA TCCGACTAT CTCCAGGGG GTCTAGAGA CAGGAATAG AGACTGAGTC GATGCGGTTC TTCTTTCTT
2401 AAAGCAAGG GTTCCAGAG AGCGAGACA CCGCTGCA CTAATGCA GGAACGTGCG GAGGAGCTG ACAGTCCAG TTCAAGCGGT AAGAGAGT
TTTCCCTTC CAGGCTTC TCGCTTGT CAGCGAGCT CATTACAGT CATTGACAG CTCCCTGAC TGTCTGCTG AAGTCCGCA TTCTCTCA
2501 CTGGGGGTG CTGAGGCGG TCGTGGAGC ACTCTGCTT GTTCTCCG CCGTCTCAC TGTGCTGTG TCTTAAGCA GGAACCCG TCTTAAGGA
GACCCGACA GAAGTCCGGC AGGACCTCG TGAAGGGA CAGAGGGG GCAAGAGTG ACACGACAC AGAATTTCT CATTGGGG AGAATCCCT
2601 CAGGGTCAG TAAACCTGA TGAATGCT CCAATGCAAT GCTAGACC ATGCCACTT ACTTCCAGT GTTCCCACT TTCCCTGAT ATGTCCCAAC
GTCCCACTC AATCCAGCT ACTTACCA GGTATACGA CAGTCTGG TACGGTGA TGAAGCTGA CAGGGTGA AAGGACTTA TACAGGGTG
2701 ATGTCAACT CCGCTTTC TCTACCTTA AGAGACAG CTAAGAGAG TAACTCTTC ACCTCTTTT CTTCATTA TAAATATCA TTTCCCTTC
TACAGTGGGA GACCGAAG AGAGTCAAT TCTCTGTTC GATCTCTCC ATTAAGAGAG TGAAGAAA GAGTGAATTT ATTAATAGT AAAACGAG
2801 CTGCTTCAT TTTTCTTC TGAAGTGGG ATTCACCTG CTAATTCAG CCGTCTCC CCACTTGAAT AGCTTCAAGT TTCAACCTT GGTGAGAG
GACGAGTGA AAAAAAAG ACTCGACCC TGAAGACA GATCAAGTC GGAAGAGGG GGTGAATTA TCGAGTCA AAGTGGGA CCACTTAC
2901 CCAATCACT GACTGCTCT GGTGGAAC TATTTGTG TAACTAAT CTTGTCTG TACTTCACT ATTCAGAT CTGCGCACT TGAAGTGTG
GGTATGAGA CTGACGAGA CCGACTTTC AATAACAG ATTCAATTA GGAACAGAG ATGAATGA TAAATGCA GACGGTGA ACTGACAC

FIG. 4B-3

3001 GGGGCAACA AGCCCACTTC TTCTCTCTT TTTTACTCA GTGCAACCC CACACACAA ACTTCATGC CTGCCCTTG AAACAGGGT GGGTCTGTA
 CCGGGTGGT TGGGTGAAG AAAGAGAA AAAATGAGT CACGTGGGG GGTGTGTGT TTGAAGTAG GACGGGAAC TTGTGTCCA CCGAGAGCT
 3101 CTCCCGCTCG GAGGCTGTA GGAATGGT ACACAACT CATTAAAC AACATTAAG CATTACTAC TGACTACAA ACTGTAGTG TTTTCTTTT
 GAGGGGAC CTCGACTT CTCCTACCA TTGTCTGGA GTAAATTTTG TTGTATTC GTATGTATG ACTAGTTGT TTGACTAC AAAGAATA
 3201 TTCTCTCA AAAATTAAT GTTTGTTA TTTATATT CTTAATTTT GATGATGTC TGTGTACAA CACACACAT AGAGCTAG AGGAATTT
 AAGAGAGT TTTTATTA CCAACAAAT AAATATTA CCAATACAA CTACTACG AACAGTGT GTGTGTGA TGTCTAGTC TCCCTTAA
 3301 TCAATGTTG TTCTCTCTT CCGTGTGTG GTCTCTCTT GCAATCTOC TTACTACTT GACTACAAAT GCGGCTCTT GCGTTTAA GCAAGTACT
 AGATCAAC AAAGAGAA GCAACACAC CACGAAGA CCGTAGAG AGTAGTCA CTGATTTA CCGGGAGA CCGAATTC GTCTATGA
 3401 CTTTATGTA GGGGACCT TTCTCGCC TCTAAAGT GAGTTTACA ATTTTACA TCAACACAG CTTGAGTTC TTGCTTCA GTAGTCCA
 GGAATCATGT CCGCTGGA AAGAGCCG AGATTCA CTATATGT TCAAGTGT AGTGTCTC GAATCTAG AACGATAT CACTGAGT
 3501 CTCTGACCTA GCTCTTCCC AACATCTT TACTGTATG GGAATCCA GCAAGATA GCAATGCTA CCAATTTT CTCTTACG AGGTCCCT
 GAGAGGAT CCAAGAGCG TTGTAGAA ATCAGACTAC CCGTTGCT CCGTCTCAT GATACAGAT GTCTTAAG GAAATCCC TCCAGCGA
 3601 CAGTTGGAG GAGCTGTCC ACCCGCTCG ATCACACA AGAATATG AGTGTGGGT TGGCGGTT AGCTACTT GTGTGTCC TACACAA
 GTCAACCTC CTCGACAG TGGGGAC TACTGTGT TCTTACATC TCAACCCA ACCCGGAC TTGATGAA CACACACG ACTGTGT
 3701 TTCTCTTTC TTGTCTCT ATGACTGEC CTCCTGGA TCCATTAGA ACTGTACG CTTGAGAG AAAGCAAA GCTGATCG GAAATCCC
 AAGAGAAAG AGACAGAA TACTGACCG GAGCACTT AGTAATCT TTGATGAT GACTTCTC TTTTCTCT GACTTACG CTTAACCC
 3801 ACCTCAAAA AGAGAGAA CCGCTGAGT TTGTCTGT GCGCACAA CCGGCTGCA AGTTCCTTA CCAAGAGCG CCGGGCCAG GCGGTGEC
 TCGAGTTT TTCTCTCT GCGACTCA AACAGACA CCGGTGT TTGCGAGT TTAAAGGAT GCTTCTCCC GCGGCTGTC CCGGACCG
 3901 CGAGGTAGA GATTTCAG GTTAACTC GCTTAAGA GAGGCTTG GCTGTGCT GCGGCTCT CCAACACCC CCGTCCCTT CCAAGACG
 GCTTCACTT CTAACGTC CCAATTTAG CCAATCTT CTCCGAGC CCAACAGAA CCGCGGGA GTGTGTGCG GGAAGGGA GTGTGTGCG

FIG. 4B-4

4001 CGAGAGGAC CCCCCAACT GACCCCTCT CTCTTACAC AAGTGAAGT TGAAGTCTC GCGAACCTC TCCCCCTGT TACCCCTCG TACCTCTCT
 GCTCTCCGTG GCGGCTTGA CTCCGAGAG GAGAACTGTG TGTACTTCA AGTTGAGAG CCGCTGCGGA AGGCGACAA ATTGCGAGC ATTGAGAGA
 4101 CCGTTCTCT CACCTCCCG GAGCTCTCG CCGTCCCGG CCGCCAAAC ACCAGCGGA GCGAGAACCT GTCCGACCG CTGACTCC CCGTCCCTCT
 GCAACAGAG GTGAGCGGC CTCCAGAGC GCAACCGGC CCGGCTTCCG TCGTCCCGT CCGCTCTCG CAGCTCGGC GACTTGAGC GAGCGAGAG
 4201 TCGCTCTTAA ACTCTTAA GAAACAAAC AACAAACC GCAAGAGCA AGAGAGAGA AGATTGAGAG GAGAGCGAG GAAGAGTCC GCGGCTGTCT
 AGGAGACTT TGAAGAACT GTTGTCTTG TTTGTCTG CCGTCCCTCT TCCCTCTCT TCTACTCTC CTCTCCCTC CTCTGTCAG CCCCCACAA
 4301 GTGTGAACC TTGACTCTT CTGTCTGAC ACTCCCGCC TCTCCCATCG GACATGACG AAGGACTCC TTGTCTTT GTCTCTCTC TGTGTTTC
 CACACTCGG AACTGAGAA GACAGCTCG TCGACCGCG AGAGGTGAC CTGTACTCC TTCTGAGAG AAACACAAA CACGAGACG AGACCAAAAG
 4401 TGTCCCTCCG CAGAGCGGA GACCTGTGA CTTTCCGAC AGCGGCTCG CCGCGATGA AACCCCTCC TGCATCTCT TGTCTGTAA CTTCACCA
 AACCGCGCC GCTCTCGCT CTGACACT GAAACCTCG TCCCCAAC CCGCCCTACT TGTGCGAGG AGTATPAGAA ACAGACAACT GAAGTTGGT
 4501 ACTTCTCGG ATGAGTGGT GACTCGCTG GTACGCTCG GTCCAAACC CACTTTGCG GTCTTACGTG AGCTGAGAG GGAAGAGTG CTGAGTGTG
 TGAAGACCC TATCTAACG CTGACCAAC CATTCCACC CAGCTTCGG GTGAAACG GAGATTGAC TCCGACTCC CCTTCTCAC GACTCACACC
 4601 GGTGAGGGT GGTGTAGGT CGACTGCGA TCGACTTCA GAGAGCCA ACCAGGAAT GACAGCACG TCTGTCTT CTTTTCCC ACCAACCA
 CCACTTCCA CCAACTCA GCTCGACCT AGTGAAGT CTCTCGGT TCGTCTTAA CTGTCTGCG AGAGAGAA GAAAGCGCG TCGGTGGTAA
 4701 CCAACCTCAA GGTGACGG TGAACAAAT AGCTCTGTT TCGTCCCTCG GCGCTTACT GATTACTTA ACATTTCCA GAGCTTACA CCGTCTCTG
 GGTGAGGTT CCAAGTCCC ACTGTCTTA TCGAGACAA ACCAGGAGC CCGGAATGA CTAATTGAT TGTAAAGTT CTCCAACTT GAGAGAGAC
 4801 GACGAATGA CCCCCCACT GAGGAAATC GATCCCTCT TTGAGACT GCTAACCCA CTCCCGCTG ATTCCAAAT GTGAACCTC ATTGACTCC
 CTCTTAACT CCGGCGCTGA CTCCCTTCAG CTACCGCGGA AACCTTACA CGATTGGGT GAGCGCGAC TAACTTTTA GACTTGGGA TGACTGAG
 4901 TCACTCTTC CCGCTGCGA AACTGCTC AGGTGAGTT TTTTCTCG TCTGTACAG ACCCCCTCC CAACTACAG CCGCTCCAC CCGTGTGAG
 AGTCAGAG GAGAGCTT TTGACCGAG TCCAACTTA AAAAGAGC AGAGATGTC TCGCGGAGG GTTGAAGTGG GCGAGGGTG GCGACACTC

FIG. 4B-5

5001 TATTATGCTA TGTCCCTCTC ACCCTACCC CCACCCAGG CCCCCTGGC CGTCTCGTT GGGCTTACT GGTTTTGGC AGCAGGGGC GCTGCAGCC
ATAATACGAT ACAGGAGAG TGGAGTGG GGTGGGCTC CGGGAACG GCAGAGCAA CCGGATGA CCAAAACCG TCGTCCCCG CAGCGTCCG
5101 CCATCTTCT GAGCGCTTT ATACTGTA TGAATGTC GATTCTGG CCGCCCGAT GGAATTGACC CCAGCCCTC CAAACTTT CTTGGGCTC
GGTAGACGA CCTCGGAAA TAGACACT ACTACAGC CTACAGACC CGCGGCTTA CCTTACTGG GGTTCGGAG GTTTGAAA GACCCCGAG
5201 CCTTCTTC ACTTCTTC TCCCTCCCT TGAAGGAG TTGACTGA AAGATTACC ACAGCCATC CCGTGGCT TCTTCTAG GCCCAGACT
GGAGAGAG TGAAGAGG AGGAGGGA ACTGTCCCT ATCTGACT TTCTTACTGG TGTCTGGTAG GGCACCGGA AGAACAGTC CCGGTCTGA
5301 TTTTCTCTT AAGTCTTCG CCTTCCCGAG CTTAGAGCC CAACTTTC CCACCTGGG AGCCCGCAT CCTTCACAG AGTTCAGGC AATTTCAGA
AAAGAGAA TTACAGAGC GGAAGGGTC GATCTCCG GTTAGAGG GTTGGACC TCGGCGGTA GAGAGTGT TCCAGCTCG TTAAAGTCT
5401 GAAGTTTCA GGGCTGAGC TTTCCTTC CTATCTGA TATTGAAT CCAAAATAT TTTTGACTA GCATCTTAA GAGGGGCTG AGTTCCTACT
CTTCAAGT CCGACTCCG AAACGAGCG GATGAGCT ATAATCTAG GGTTTTCA AAACTGAT CGATGAATT CTCCCGGAC TCAAGGTGA
5501 ATCCCACTCC ATCCATTC TTCACTCCA AAGAGATT CTGTCCCTC CTTCAGCT TCACTGTG AGAATCCAC GATCAGATT TCTATTTCT
TAGGTGAG TAGGTAGG AAGTACGG TTCTCTAA GACAGGAG GAGTTCGA AGTGAGCAC TCTTAGGCTG CTAGCTTAA AGATAAGA
5601 AATATTGGG AGATTGGCC TACCGCCGT CCCCCTGCT GCATGAGCA TTCCATACC TGTCTGGC CTTAGTTC AAACCTATC CCAACCCA
TTATTAACC TCTAACCGG ATGCGGGGA GGGGACGA GATACCTGT AAGGATGG ACAGACCG GATCCAGG TTGANTTAG GTTTGGGT
5701 CCCCAGCTA TTATTCCTT TCTGTCTC CAAAAGCAC TTATATCAT TAGATATA TAAATATAT ATATATGAT GTCCGTGT GTCCGTGTC
GGGGTGGT AAATAGGGA AGACAGAG GTTTTCTG AATATAGTA ATACATTT ATTATATA TATATCTA CACGACACA CACGACAG
5801 GTCCGTGCT GCGTCCGTC GACTTCTT GTTTCAAT GTCTGTGA GTTCAATC CTTTCTGG ATTGATCA GACTTCTG CTGTCCCTT
CACGACGA CCGACGAG CTGAGGA CAAAGTCA CACGACCT CAAGTTTAG CAGAGCCC TAACTAGT CTGAAGACC GACGGGAA
5901 TTGTCACTT TTTGTGTTG TCTCCCTC TCTGCTGT GAGAGATC CCGGCTTC CTTTATCT TTCTCAAT TGTCTCTC AGACATTC
AACATGAA AAACACAC AGACCGAG AGACGACA CTTCTCTAG GCGCGAGG GGAATAGA AAGTTTAG ACAGCGAG TCTGTAGG

FIG. 4B-6



6001 CAACATGCT CCACCTTCAA TCACTCTGAT CTCCGGTCTG TCTGTAAAT CTGCAATGCT CGGGCAATG CAATTTTACT TCTGTAACTA AGTGTACTG
GTTGTACAGA GTGTAGAGTT ACTGTAGCTA GAGCCAGAC AGCAATTTAA GACCTAAACA GCGCTGTAC GTTAAATGA AGCAATTCAT TCACTACTAC
6101 GGTGTAGAT TTTTAAAT CTAAATCGTT GAGATCTG GTGTAAATG TCTGTACAG AGAAGGCTT GCACCTCCCG ACCACAAATC ATTGACTCCA
CCACATCTTA AAAATGTTA GATATACAA CTCTTAAGAC CCACCTTAC AGACTAGTCC TCTTCCGGA CGGTGAGGC TGTGTTAAG TAACTAGGT
6201 TTAGCCCTAC CCAAGCTGTA TTTGTGATTT TTTTCAATTT GTTTTCTTGT ATTGTGACC TGACCCCGGG GTGTCTGGG CAGTTATTA CTGGCACT
ATCGGAGTG GTTCCGACAT AAACCTTAA AAAATGAAA CAAAAACA TAAACGTGG ACTGGGGCCC CCACGACCC GTCAATTAAT GACCCGTGCA
6301 CCCCCTCCCC CCTTGTTCT GCATCTGCC CAATTAAG CTTTAAATA ACTGTATCT TCACTCAA GTGTCTGTT TCCCTGACA TCTAACTAT
GGGAGGGGG GGAACCAAGA GTGTACAGCG GTATTTTTC GAAATTTT TCACTTACA AGTCCAGTTT CACAGACAA AGGACCTGT AGATGATTA
6401 GCTTCTCTT CAGAAAACG GAGTTTGAT TCCATAGGAA GTCTTCTG CACTTATGAG GAGCCCTAAC GAATCAGAC CTACAGCGG ACTAAAGGA
CCGAGGAAA GTCTTTTTC CTCAAACTTA AGATCCCTT CAGACGACC GTGATTAACC CTCCGATG GTTACTCTG GATGTGCC TATTTTCTT
6501 AGTGTAGACT TCCATAGTTT TCCATGTTT CCAAGCTGG CCACCTACTT GAAAAATA GGGCGGAAA AGTGTAACT ACCAAATTTG GTGAGGCT
TCACTCTGA AGATCCAAA AGGATCAG GTTCCGACC GTGTATGA CTTTAAAT CCCCCCTT TCAATTTCA TGTTTTAAAC CACTTCCAG
6601 TCGAGAAAT TCAATGATCG AAAAGATTT ATTCACTTG GTGTGCAAT GAATTTGAG CACACTTAA GGGCAAGGT GTAAAGCTG GGCACACTT
ACCTCTTAA AGTACTAGCC TTTCTTAA TAACTGAA CCACTTAA CTGTAAAGT GTGTCAAT CCGTTCCA CATTTCCAG CCGTGTGA
6701 GTAAATCTTA GCATTTGAGA GTGTGAGCA AGCGATTA CTGTGAGT TCACTGAT GTGATCTA GATACAGC GCAAAGTCT GCTATGGGA
CAATTAAGAT GTTAACTCT CCACCTCCGT TCCCTAGTT GACACCTTA AGTCACTTA CACTAGAT CTATGTTG CGTTCTAGA GATACCCCT
6801 GAGGCTTGG TACACAGAG GAGCCAGAG TTTCTGCTG AGGCTATG AGGCAAGT GAGATGAGA GTTAACTTA GGAATCTT AAGCCAAATG
CTCCGAGC ATGTGTCCC CTGGCTTTC AAACACAC TCCATTAACC TCCGTTAC CTCTACTT CAATCGAGT CCGTTTAA TGTCCGTTAC
6901 ATGCAGATT CAGACCTCC CTTTGAAGC ACTAGAGAG CCAAGCAAGT TTTGACAGA GAAGTTAGA GTTAAAGT CTCTCTTAC CCATCCAG
TACCTCTAA GTCTCCAGG GAACTTTC TATCTCTG CGGTCTCCA AAACCTGCT CTTCATCT CAATCACTA GAGAGATG GTTAAAGT

FIG. 4B-7

7001 CTGAGAGCA CGCTGAGGT TTCAAGAG AGCGAATG GAACAGAG GAGAGAG AGCGAGAG CTGAGAG CGAGACACA TTCTCTCT
GACTCTCT CGACTCCA AGTTCTTC TACTCTTC CTTCCTCT CTCTCTTC TAGCTTC GACTCTCT CGCTCTGT AAGAGAGA
7101 TTAAAGCA GCTGGAAG GATACTTC TGAGAGAG GATCTCAC AGTCGGTG TCGAGGGT TCTTGAAA GAGAGCAT TTCTCAAG
ATTATGTT CGACTTTC CTATGAG AGCTCTCT CTAGAGTG TCAAGCAC AGTCCCCA AGACTTT CTCTCGTA ACGATTTC
7201 CTGGTTCC CACTTCC TCTCTCA CTCTCTC CATGAGGT GTCTCAG CGACTTC TGAGCTCC TTGAGAG AGCTCTAG
GAGCGAGG GTAGAGCG AGAGAGT CGAGAGAG GTATTACA CAGAGTTC CGTGAGAG AGCTGAG AGACTTTC TGAGATAC
7301 CTGAGTTCA TTAAAGAC ATTGCTTG TGCGCTCT TCTCACAG CTAGTTAC TCAAGAG AGCGTAG GTGATAC ACTCTATC
GACTCAGT ATTCTTG TTAGGAG AGCGAGAG AGAGTAG GACTCAATG AGTTCTTG TCCGATT CACTAGTG TTGAGTAG
7401 CCACTACTEC TCCAGCGAG AGAGAGCT GAGCGAGT GACAAATG ACAAAATG CTATATTC ATCGTATT AATACATA AGAGAGAT
GATATGAG AGTTGCTC TCTCTCTA CTGCGCTCA CTGTTACT TGTATTACT GATTATGAG TAGCAGTA TTATGATT TTCTCTCA
7501 GACTGATGA CGAATGTT TAGAGAGA CAGCAGATC CTGATTTT GAGCTAAT TTAAATCAT CTTGAGAG CATTTGTC GAAATCTG
CTGACTACT CGTTAGCA ATTCTCTT GTCTCTAG GATCTAAA CCTGATTA AATTAGGA GAATCTAC GTAAAGAG CTTHAGAG
7601 GAGGAAAA AGTGAAT ATGAGAG AGTAATG AGTAGGAG GTTCAGAG GTTACTTC GCGCTGTC CTTHAGCA AGATGAAA
CTCTCTTT TTCAATTA TACTCTCT TTATTACT TTATCCAC CGAGCTCT CCAATGAG CGGAGAG GAAACATG TCTTACTT
7701 TTGAGGAG CAATGGA TAGTACTC CGCGAGAG GTGAAATGA ACCCTCTGT CCTTAAG CTACAGTT GAAGCTCA CCGAGACA
AAGCTCTC GTTTACCT ATTATGAG CGGCTTTC CACTACT TGTAGACA CGATTGTC GATGICAA CTGAGAGT GGGCTCTG
7801 CTGAGATCA TCGCGGGA AGAGCTAT TTAGTTAG TAAAGAG CGAGACTA CACTTTTA CACTATGT CATATTGT GTATACAT
GACTCTAGT AGCGCGTT TCTCGATA AGTCAATC AATATTCC GCTATGAT GAGAAAAT GTATACCA GTATACCA CATTAGTA
7901 AGATATTA TTCAATGT TTCAACT TTCTTACT TTCTCTTG ACATGTT TCTCAGTA AGTTTCT GATGACT ACTACTAA
TCTATAT AAGTACA AGCTGAA AAAAGTA AAAAGAC TTGACAA AGGCTATT TCACAGCA CTACTAGA TGATTATT

FIG. 4B-8

8001 AAGIAGIAG CTICATITTC ATAGCCCTT GCATITITGG AACAGCCCC TAAIGICCT GICICCCIA CTAAGCAG AATTITITTC AAGTGA
TTICATITATC GAGIAGAGC TATCCCGAA CGTAAACCC TTICICCGG AITICAGGA CAGAGGAT GATTITICIC TTAAGAACG TTICATITTT
8101 GTICAGITTA TTTTITITG TTITITITCT TGTITITTTT TPAITGAAA ACTITICAGC CCCCACATTC GTAGAGAT TCGAGITTTT CTGACCGA
CAGICAAAT AAAACAAC AACAAAGCA ACACAAAA ATTACITTTT TGAAGITIC CCGCGTAA CAGITICTA ACTITAAA GAGTICCT
8201 GAGCAGAC TTITITITGG TCTGACCGA CCGGCGCGA GAGCAGAC TCCCTITCT TTAAGACT GCAAGITAT AGGAGITTA CTGATCCT
CTITGITICG AACCATCC AGCTICCGT GCGCGCGCT CTGCTITGG ACCGACGA AATITITGA CTTICATA TCCITAGAT GACTIAGGA
8301 AGGAGITGA GTTGAACAC AACTCCCTT GAGTITAGC CTAAGAAC ATCCCTTTT ATATITATGT GATTAGCCA GCGAACITTA GCCTIAGCA
TCCACTITACT CACTITITGG TTGAGCGGA CTCAATITG CATITITGG TAGGAAAA TATTAATACA CTATCCGCT CACTITAT CCGAGITCT
8401 TCGATATATC CACAGCCGAG TTCTITATC CCACTCCCT AGCGGAATG AACCTIAGG TTITGTTTT AATITICTTG CCGCAGCGCC AGTCCCTTA
ACCTATITATG GTITGCTCT AAGACATCG GGTIAGGGA TCCCTITAC TTIGANTIC AACACAAA TTAACAGAC CCGTCCCGG TACCGGAT
8501 TTGCGAGAG TCCCTITAT AGCGAGITG TACTITTA GAGAGITG TCACTIAGG GCGAGITTT GAGTACGTA TCCITAGATC TCCGAGIT
AACCTICTC ACCGAAATTA TCCCTCCAC ATGCAAAAT CTCTIACAC AGTGAACCT CCGTCAAAA CTCCATCAT AGAGITCAG ACCGICACA
8601 GATCTICCT GICITCAGAA CGTCTCTCC TTCTGCTTC CTITGATTA AGGITAGAA CTCTIAGCT CTCTCCAG ACCATITCTG CTTCTTAT
CTAGACCGA CAGCTCTT GCACAGAG AGACCCAGG GAGCTTAT TCCATITCT GAGAGTCAG GAGAGITCG TCGTACAGC GAGAGATTA
8701 CCTTICCTT TTTCATGAC GATAGTAC TGTCTCTG AACTITAG TCAACCCCC AGTACATGT TTCTTTTAT AAGITTCGA TATATATATG
CGAAGCAG AAGGATCT CTATITCTG ACACGAGAC TTICATITC AGTCCGCGG TCAATIGCA AAAAATAA TTCTAAGT ATATATATC
8801 TATGATATA TGTATITATA TATGATATA TATATATAA TATATATAA CAGGCTTCA CTCTTACT CTGCTGCC TGAATITAC TATGAGCC
ATACATATAT ACATACATAT ATACATATAT ATATATATAT ATATATATAT GTCCAGAGT GAGAAATGA GACGACCGG ACTTATAGT ATACATCGG
8901 AGAGITCCT GACTITGA CCAATITCC TCCCTIACC TCCAGATGT ATTACAGGA TGAITICAA CAGCCATTT AATCTTATG ATGATATA
TCCTAAGCA CTGAACCT CTTAGAGG AGGAGTGG AGGTTACA TAAITCCGT ACTAGITGT GTTCGMAA TTGAATAC TACTAGATAT

FIG. 4B-9

9001 AGAAGACAGA AANACAGAGT TCCCTTACCT AGTTCACAGA TCCCMACAT CTACCTCGT TCCCTCCATA AACACCCCTA CCCCACCTC CTGACCTEC
TCTTCTGTCT TTTCGTCTCA AGGAATGGA TCAAGTGTCT AGGANTGTA GATTGACGA ACCGAGTAT TTGTCCGAT GGGGTGGAG GACCTTGACG
9101 TTGAGAGAT GTTCAGAGCT CTCACAGCA CACTCTCTCT TGGTAACT CTTCAGCTG GTTCCCTTC CCCCACATGT CCATGTGEC CAAGCCCTCT
AACTCTTA CGAGCTCGA GAGTGTCTGT GTGAGAGGA ACCAATTGGA GAAGTGGAC CACGGAAGG GGGGGTACA GGTACACCGG GTTTCGAGCA
9201 CATCTCTTC TCMAATACA CTACCTAGTA AGCCTCCCG ACCTGACCG GTTAAATAT TAGAAGAGG TCACTTCTC CCTGCACAG AACACCAAC
GTAGACAG AGTTATGCT GATCGATCAT TCCGAGGGC TGACTGGC CAATTGTA ATTCTTCC AGTGAAGAG GGAAGGTCTC TGTGTCTTG
9301 CACCAATGEC TTGTACTTA CTACCTAGCT ATGAGGTGA ATGATGTCT TCACAACCT TCTCTGAGC TCAGTTCC CACTGCAHA ATGCATCTGA
GTGCTATAG AACAGTAT GATGACTGA TACTCCAT TATCTACGA AGTGTGGA AGAGCTCG AGTCAGAGG GTGACGTAT TACGTAGACT
9401 GACACAGAT TCCMAGAC TTGTCTCT CTCATCTTA GTCTGGAC CCTTATAC ATTCTCAT GTTGTGTA CCCCACAC ACCATAAAT
CTGTCTTA AGGATCTCG AACACAGG GATGAGAT CACACCTG GGAATTAG TAGAGTA CACACACT GGGGTGTG TGGTATTTA
9501 TATTTCAAT GATCTCAT ACTGAAAT TTTCATG TGATAGAG TATGTAC ATTGTCTT CCGAGTCT TTAGTGAC CTGTGAGA
ATAAGGTA CTATAGTA TTGATTTA AAAATGAC AATCTATC ATTCATCTG TAAACAA GGTCTAGAG AATCTCTG GACCTCTCT
9601 GTCACTCAC CCAAGAGGG TCCACACAC AGTTAGAA TTCTGCAT AGAGATCA CAGGACAT GATTAAC TTTGGGCTG
CAGTAAGTG GGGTTCCC AGGGGTGT TTCAATCTT AACAGGTA TCTCTTAGT GTCCGTGA CTAATTGT AACCACTG AAAACCCAC
9701 CCTTCTGGA GCGCTAGAG CTATGACAG CTACATCAT TTCTGAAT TTGTGTGT GTGTGTGT GTGTGTGT GCGTGAATC
GGAAGACCT CCGCATCTC GATTCTGT GGTGATTA AGCTTTA AACACCA CACACCA CACACCA CCGACTGAG
9801 GCGTCTGAG ATAAGCACCT GCGTTAGTG TTCTGACC CATTCTAC CAGACTCT CCGTACCTG ATTCTGAT GTGACATA TGTCTATA
CCACGACTC TATCCGTCA CCGAATCAC AGGACCTG GTATGAGTG GTCTGAGAG GGAAGTGA TAGAATA CACTTGAT AACAGATAT
9901 GTGCGGTG CAATGACAC AACGTGAC TAAATTGA AGTGAAT CACTGAGA TCAATAT CCAATTGA AGTGGGTG GATTGTGA
CAACCCAC GTATCTGT TTGTACTG ATTAAAT TTACTTGA GTGACCTCT AGTTATA CGTAAACT TCAACCCAC CTACAGAT

FIG. 4B-10

10001 TAACTAATA ACAATAACA GAGAGAGC CCGTGTCT TCGAAGTTT ATATGCTCA GTACAGGGA ACCGAGGC CAGAGTGG GAGTGGTGG
ATTGAATTAT TGTATTGGGT CTCTCTCCG GGAACACGA AGCTTGAAA TATAGGAGT CAGTCCCT TCGGTCCG GTCTTACC CTACCCACC
10101 GTAGGGAGC AGGTGGGG GAGGTATAG GGAATTCC GATAGATT TGAATTGTA ATGAGAAA TATCTAATA AAATTGAAA AAAATGTTA
CATCCCTCG TCCACCCC CTCCATTAT CCGTAAGG CCAATGTA ACTTACATT TACTCTTT ATGATTAT TTTAACTT TTTTACAT
10201 CCGAGTTTG GCGTGATCT CACTACTCA ACCAGCTGG CATTGACT TCGTAGAT TCGTACTTC TCGCTCTGG GTCCAGAA CAATTTTGG
GGGTCAAC CGAAGCTAGA GTATGAGT TGTCTGACC GTACCTAG AGACTTAG ACCATTAG AGGAGACC CAGCTTCT GTTAAAAAC
10301 AAGTTAGTC TCTTCTCA TCTTGAT TCCAGGAT GACTGGGT CATTAGCTT GCTTCAAGT GACTTACTA GGTGTCC CAGCCTCT
TTCAATCAG AGAGAGGT AGAACCTTA AGTCCCTA CTGAGCCA GTATCCGA CCGAGTTCA CTGATTAT CCAGAGGG TGTGGAGAG
10401 GGTTGATTA GTTAGTCT GACTTCTAG CCGACTTC GCACATGTA GATAGACA TGTCTTAC ACTCTTCA ATGATTGTA TATCAGAGC
CGAACTAAT CAATCAGA GTTAGATC GACTGAG CGTATCAT CTATCTGT ACAGATTG TAGAGAT TACTATCAT ATAGTCTCG
10501 CAGGTAGA GATGCTAG TGGTAGAG CAGAGCTC TCTTCAAG GTCCAGTT CAATCCAG CATCAGTA GTGCTTCA TTCCCTTA
GTCACTACT CTAGAGTC ACCATTCT GTCTGAG AGAGTTTC CAGGCTCA GTTGGGT GTTAGTAT CAAGAGGT AAGGAGAT
10601 TCGATGCT GAGCTCT ACAGTACT TACATTAAT AAATAATA ATCTTAAA AAAAACC ACCGGGGT GTGGCCAC GCGTTAATC
ACCTACAGA CTCTAGCA TGTACATGA ATGTATTA TTTATTAT TAGATTIT TTTTGGG TCGCCCGA CCACCGTG CGAATTAG
10701 CCAGACTTG GAGCGAG GAGCGGAT TCGTAGTC GAGCCACC TGTTCAG AGTGAATCC AGCAGCCA GACTACAA GAGAACCT
GTCTGAC CTCTGCTC GTCCCGTA AGACTCAG CTGGTGG ACCAGTTC TACTCAG TCTGTGGT CTGATGT CTCTTCCA
10801 GTCTGAAA AAAAGAGA GAGGAGG TAGAGCCA ATATCTTA CATTCTGG GTGTCTTG CTGAGCTA TTCTGTAAG CATGCTGC
CAGCTTT TTTTCTCT CTCTCTTC ACTCTCGT TATGATT GTAAAGAC CAGAGAC GACTCAGT AAGCTATC GTTACAGC
10901 TTCTTCCA GTAGAGAT AACTTTCT TATTAAGT ATTGCTGG CTATTTT CTGTATT TATGCTGG AGATGAGC CAGACCT
AGGAGGT CAGCTTCA TGTAGAA ATTTTCA TAGAGAC GATTAATA GAGAAATA ATCCAGAC TCCACTTG GTCTGGGA

FIG. 4B-11



11001 TEGMAGCA GCGMAGCT TMACACTA GCGMAGCT AGCTTGCAC TCGGGGATTC TAGCMAGG TCTMACACT GAGCGMAGCT CCGMAGCT
AGCTTGCCT CCGMAGCA AMTGACT CCGMAGG TCGMAGCT AGCTTGCAC AGCTTGCAC CCGMAGCT CCGMAGCT
11101 AGCTTGCCT GAGMAGCT AGCTTGCAC AMTGACT TCTMACACT TAGMAGCT TCTMACACT TCTMACACT
TAGMAGCA CCGMAGCA TCGMAGG TCTMACACT AMTGACT AMTGACT AMTGACT AMTGACT AMTGACT

FIG. 4B-12

10 20 30 40 50 60 70 80 90 100
AACCTGCAGGAGCTAGAGGCGACCTGTGGCGTTGATTCAATGCACTGGCCTTATCTCGATGAGATCGGTCAACCACTCAAAACTGTGACTTGA
TTCCGAACGTCCCTCCATCTCCGTCCGACACCCCACTAAGTTACGTGACCCGAATAGAGCGCTACTGTAGCCAGTGTCAAGTTTTCGACTCGAACT
110 120 130 140 150 160 170 180 190 200
AGCTTGGGTGCTTAACATCTATTTTACAATCTTATTAGCACTTGAACCTGGAATATTTGAAAGCTACTTAACTTCTTAACTCCCTCTCC
TCCAGAACCCACGAATTGTAGTAAAAATGTTTGAATTAATCGTTGAATCTTGACACTTTATTAACCTTCGATGAATTTGGAAGATTTGAGGAGAGG
210 220 230 240 250 260 270 280 290 300
ACACTATGAGAAATGTTACATTTTCTATTTCAGTTATTTTGAGCAGTAAACAGATGAATCAAGAAATATGCCATCATCAAGAGTCTCTTAAATGAC
TGTGATACTCTTACAAATGTAAAGATAGTCAATAAAACTCGTCAATTGTCTACTTACTTACTTATACGGGTAGTGTACTCTCAAGAGATTTTACCTG
310 320 330 340 350 360 370 380 390 400
TTGCTTGTATTTCATTACAGTGTGCCCCCTTGACTTTTCAATGGCACTCCCTAGCAAAAACAAATCCGCCAGATGAGCTGAGAGATGGCTCAGCTGT
AACGAACAATAATGATGTCAACCCGGGAACGTGAAGTAGCCGTGAGATCGTCTTTTGTTTTAGCGGTCTACCTCGACCTCTCTACCGAGTGCACA
410 420 430 440 450 460 470 480 490 500
TAAGATATCTTATCCCTTACACAGGCCCTGAGCCAGTTCCAGACCCACACAGGTGGCTCAACAACATCTGTAACTCCAGTTCTAGAGACCCGACTCCC
ATTCTTATGATAGGAGTGTGTCCGGGACCTCGGTCAAGGTCGTGGGTGCAACCGAGTGTGTGAGACATTGAGTCAAGATTCCTCTGGGCTGAGGG

FIG. 5A

510	520	530	540	550	560	570	580	590	600
TCTTCTGTGAAAAACACGAGCA	CGCGTGGCGCTACACAAACATGA	AGCAAAATACACACATTACATAA	ATAATCTTAAAAATGATTCGGCTG						
AGAGACAGACTTTTGTGTCCGTG	CGCACCGCGGATGATGTTGTACT	TTCCGTTTATGTGTATGTATTTA	GAATTTTTTACTAAGCCCCAC						
610	620	630	640	650	660	670	680	690	700
GGGGAAGAAAAAAGCATGTTA	GAATTCGATGTAACTGTTTTTTC	CTTTTGACACAGTCTAAGTAGGA	AGAGAACATTCCTTACATCGA	AT					
CCCCCTTCCTTTTTTCCACAA	CTTTTACGTCATTTGACAAAAA	AGAAAAAGTGTCTAGATTCA	TCCCTTCCTTGTAAAGAAATG	GTAGCTCTTA					
710	720	730	740	750	760	770	780	790	800
AATTGTTTTCAATGCCCCCA	AGTCTGCTAATAGAGCTTGCT	TAACCTTCATGGCTGTCTAAG	ATGAGCAAGATGAGCTTCA	AGCTTTCAGACTGTCT					
TTAACAAAGTAACGGGGTTCA	GAGATTATCTCGAACGATGAA	GTACCGACAGATTCCCTAC	CTCCGTTTCTACCTGAAG	TCGAAAGTCTGACACAG					
810	820	830	840	850	860	870	880	890	900
GCTCAATGTTGCTACTCCTG	TTTTCTGACCCCCCTTCTGTG	CAATGTGACTTTCATTTAT	TTCCTGCATCTTTTACAT	ATTTGAATTTAAAAA					
CGAGTTTACACCGATGAGCA	AAAAAGACTGGGGGAAGAC	CACTTACCTGAAGTTA	TAAAGGACGTAGAAATG	ATAAATTTTTTT					
910	920	930	940	950	960	970	980	990	1000
TATTTTATTTTATGTAATG	TATGATGATGCAATCA	TAGCATATGTGTGTGTT	CCATGGAACCAAGCA	AGATTCTCCAGAGCTG	TA				
ATAAATAAATAATCA	TTAATATATACGTA	AGTTATTCGTATAC	ACACACAACAAGTAC	CTTTGTTCCGTTGCT	TAAGAGGTCTCGACAT	CTTT			

FIG. 5B

FIG. 5C

FIG. 5D